REPORTS

ON THE

ISLAND OF ARUBA,

(DUTCH)

WEST INDIES,

AND ITS GOLD ORES.

WITH A

GENERAL DESCRIPTION OF THE ISLAND.

LONDON:
PRINTED BY H. W. FOSTER, BEAR ALLEY, FARRINGDON STREET.

1872.

REPORTS, &c.

Translated copy of the Report of His Excellency J. H. Ferguson, *late Lieutenant-Governor (Gezaghebber) of Aruba, on its Mineral Wealth.*

Sir,—In answer to your letter of the 15th of February inst., in which you ask me some information in regard to the mineral wealth of this Island, I have the pleasure to state:

That it was in the year 1824 or 1825 that the minerals were first discovered in this Island, and the mines were worked by the Government till 1838. Although these works were very superficial, and consisted only in gathering the free gold and washing the sand and quartz, yet a large quantity of gold was found, and the mines were abandoned by Government only to give the benefit of it to the people, to work it for their own account. Want of capital and enterprising men, however, limited this mining work to simple washing and seeking after free gold, which the rain would wash down from the hill-sides. Yet, with this Indian-like way of gold mining, *large fortunes were obtained from the mines of Aruba*, as several living evidences can testify. *Large quantities of free gold and deposits containing pieces of pure gold, weighing from thirty to forty-four pounds, were found.* Some *of these pieces* are *yet to be seen at the Museum* of *Leyden (Holland).*

The Island abounds in quartz, containing gold and copper. The richest gold veins, as yet discovered, are—

1. "*West Point,*" a blueish quartz, with much free gold and deposits (pockets). Here the numerous diggings have been suspended, in want of simple pumps to drain the pits.

2. "*Bushiribana.*" Here the gold is visible in the white quartz, which is so hard that it will be necessary to blast it with powder, which, however, has never yet been tried, out of want of necessary implements.

3. "*Dos Plagos*," with *free gold visible* in the white quartz.

4. "*Picaron*," with *rich red quartz.*

5. "*Oratakie.*" Gold, with sulphur. *This vein is very extensive* and broad.

6. "*Mira la Mar*," nearly on the surface. Quartz with free gold was found here.

All quartz containing gold, worthy to be worked.

7. "*Calabasa*," *a very rich quartz vein, with free gold, running for a length of five thousand feet with the surface* of the ground.

8. The Mountain "Arekok" contains quite a cluster of different small veins, some running over the surface of the ground, and from which the rains wash down the free gold, which were found in the ravines called "*Royo Fluit*," eastward of Arekok.

The Aruba gold is nineteen to twenty-one carats.

The copper veins are principally "*Balashi*," and "*La Vigi*," but in several other places copper ores are found. Ores sent to New York, and are reported to give excellent results. *Besides the above-mentioned veins, gold has been found, and is yet daily found, on almost every part of the island; and I can assure you that the mines in this island, properly worked—especially with good machines to extract the gold and copper from the quartz—must undoubtedly pay, and prove fully satisfactory* to all who might venture in this enterprise.

To establish stores and all buildings and works connected with the mining business, ground is given gratuitously by Government, as stated in the Governmental decree No. 14; by which decree, also, all the non-exported ores of the former concessionaries, which have befallen on the Government, are ceded to the present concessionary, or the company established by them, in virtue of the contract with the Government, done at Curacoa, the 21st of December, 1867.

Hoping that these few statements will give you some light in the matter, I conclude this, with my sincere wishes for your welfare and prosperity.

I am, sir, yours truly,

J. H. FERGUSON,

Gezaghebber of Aruba.

Translated Extract from letter of the present Lieutenant-Governor of Aruba, dated March 16, 1872.

"The fresh wind from E.N.E., which is continuous here until the month of October, during which month we experience some calm, and it is my opinion that it can be relied upon as a motive power with success. . . . Considering the results of the ores from the mines of the Island, as obtained in the United States of America, it is my opinion that if the working of the mines could be carried on in a scientific and practical manner, and on a large scale the most advantageous results will be obtained.

(Signed) "W. M. B. GRAVENHORST,

"*The Lieutenant-Governor of Aruba.*"

Extract from the Reports on the Mines of the Island of Aruba, by Professor L. Kellner, of Saxe Gotha.

[TRANSLATION.]

"I have come to the conclusion that there is gold to be found here, almost everywhere; that in most of the veins it is in sufficient quantity to work it; and that *there is almost no limit to the number of veins.* * * * * * * *

It is machinery that you want here; it is not those deposits of rich ore that you have here—it is the almost *unlimited quantity of second-class* ore that you have to look to—for a good paying and lasting business. The ore can be *worked here,* and the gold extracted as *cheap* as in any place *in the world.* * *

If you have 100 stamps at work (I am sure there is enough wind here for 100 times that number) what an enormous amount of work you can go through per year. * * * *

You have here a never failing and strong motor or moving power; that is wind, of all powers certainly the cheapest. This is so constant and so uniform as ever you may wish for. And what can be done by it? I will try and show you. A moderate wind with a velocity of twenty feet per second, as it is generally prevailing here (for oftener it has a greater than a lesser velocity), will

exercise on a windmill with four wings, each twenty-four feet long, and on which can be spread eight hundred square feet, or about eighty-eight square yards of canvas, five 9-10 horse power. Twelve stamps of two hundred and fifty pounds each, which are to be lifted two-thirds of a foot and sixty times per minute, require 2, 250.60.12-3.60. Four 7-10 horse power and twelve stamps of three hundred pounds each require 2,300.60.12-3.60, or five 6-18 horse power.

"Why could not a set of twenty-four stamps be put up at each of the most important mines or complex of mines? Say, your mill would crush daily thirty tons (I have taken stoppages and repairs into consideration), of an average yield of four ounces per ton; *this would give* 120 *ounces of gold per day, and should yield a large profit,* as the *working expenses of the mill will be very small.* At present, and for a long time *to come no mining expenses* will be necessary. There is so much good quartz lying about everywhere on the surface, and you can extract the gold from it at as low a cost as anywhere on the face of the earth.

(Signed) "L. KELLNER,

"*Mining Engineer.*"

Extract from the Report of Prof. S. Meyer, Mining Engineer.

"The great number of veins I have seen in Aruba during a stay of four and a half weeks, and the rich quality of the ores in many of them, permit no doubt that the Island of Aruba promises to become a rich mining region; and indeed the veins Urataka, Sombrero, Bushirbana, and Kalabasa are not inferior to the Diorite veins (West Point, Santa Lucia, Arekok, North Cap, &c.). Notwithstanding so much labour has been bestowed upon the veins, the work has not been done in the right way, and therefore it ought to be supposed that mining in Aruba has been commenced only a short time since.

"I have taken great interest in inquiry in regard to the constancy of the wind, and can state that the force of the wind very

seldom is less than ten miles per hour, and will reach an average of fifteen miles. Calms occur only in the months of September and October, and the whole number of calm days in a year does not exceed thirty.

(Signed) "S. MEYER,
"*Mining Engineer.*"

Report on Concentrated Gold Ores from Aruba by A. Metzger, Chemist and Metallurgist in charge of the Greenville Reduction Works, Greenville, U. S. A.

GREENVILLE REDUCTION WORKS,
GREENVILLE, N. J., July 31, 1871.

By my assays of Aruba ores it is proved that there are four different classes of sulphurets. The richest sample from the Kadushi Mine was concentrated, and contained 1,530 dols. per ton of 2,000 pounds. The sulphurets from the Mira del Mar Lode yielded 400 dols. per ton of 2,000 pounds. The sulphurets from the Sombrero Mine yielding 210 dols. per ton of 2,000 pounds.

(Signed) A. METZGER.

Report of Benjamin F. Rule, Mining Engineer and Superintendent of the Mines of Aruba.

ARUBA ISLAND, WEST INDIES,
April 15th, 1872.

GENTLEMEN,—In compliance with your request that I furnish you with a report as to the cost of mining ore per ton since my having assumed charge of the mines of Aruba, and also to give you

my views in general on the mineral wealth of the Island, and how best to utilize the same, I have the honour to state that I was appointed General Superintendent and Mining Engineer by the present concessionaires, and arrived at Aruba, January 20th, 1870. After a complete examination of the mines then discovered, I found that though an immense amount of work had been done at various times, it was done regardless of regular mining, and apparently only with the view of immediate profits; but no preparation whatever was made for future operations. This method of operations I determined at once to abandon, and to work the mines in a proper manner by sinking shafts, drifting levels, &c. Through the want of the necessary capital, my operations were confined to the development of the following lodes,—namely, "North Sombrero," "Serro Blanco," "Sombrero," "West Serro Blanco," "South Calabasa," "Cien Fuegos," "Bushiribana," "Kadushi," and "Urataka." And for want of lumber and pumping machinery, I found it impossible to execute work on these veins to advantage. Notwithstanding these facts, the mines produced nearly 22,000 tons of ore, as follows:—

	Shipped.	Now at Mine.	Total.
Sombrero Mino ..	192 tons.	.. 2,000 tons.	.. 2,192 tons.
North Sombrero ..	22 ,,	.. 900 ,,	.. 922 ,,
Calabasa	38 ,,	.. 1,200 ,,	.. 1,238 ,,
Bushiribana ..	40 ,,	.. 500 ,,	.. 540 ,,
Cien Fuegos ..	112 ,,	.. 1,900 ,,	.. 2,012 ,,
Kadushi	181 ,,	.. 1,750 ,,	.. 1,931 ,,
Serro Blanco ..	292 ,,	.. 9,000 ,,	.. 9,292 ,,
West Serro Blanco	0 ,,	.. 1,000 ,,	.. 1,000 ,,
Urataka	12 ,,	.. 2,000 ,,	.. 2,012 ,,
Total	889 ,,	20,250 ,,	21,139 ,,

The cost of producing that amount of ores, as per pay rolls, was 5s. 10d. per ton of 2,000 lbs.

This estimate includes *all* the cost of labour for spalling the ores, which, for the want of machinery, was done by hand. And it is my opinion that fully one-third, if not one-half, of said expenses were thus incurred, and which properly should not be charged to the cost of mining the ores, but to that of milling the same.

In addition to this, I will also call your attention to the fact, that, although in this estimate all the Superintendent's, Captain's, and Overseer's salaries have been included, that they did not devote their time exclusively to the development of the before-mentioned mines, but devoted fully as much of their time to the prospecting and developing of other veins on the Island, and to which account (at least) a portion of the amounts thus charged is due. As it may prove of interest to you to be informed more particularly as to the result of the labour performed by these miners, who are natives, and receive seventy-five Dutch cents (which are equivalent to fourteen-pence English) for a day's labour of nine hours, I would state that the width of vein of the various mines, and from which the above-mentioned quantity of ore was produced, is as follows :— "Sombrero," 3 feet; "Calabasa," 6 feet; "North Sombrero," 4 feet; "Bushiribana," 3 feet; "Cien Fuegos," 8 feet; "Serro Blanco," 20 feet; "West Serro Blanco," 6 feet; "Urataka," 5 feet; "Kadushi," 3 feet; making the whole width of the vein of the nine mines 58 feet, or an average of $6\frac{4}{9}$ feet each.

From the accompanying pay-rolls you will perceive that the miners employed in mining and spalling the 21,139 tons of ores performed 29,535 days' work, or equal to $1{,}431\frac{45}{100}$ lbs., or near $\frac{3}{4}$ of a ton per day, from veins averaging $6\frac{4}{9}$ feet each. Thus we have the best proofs that the native labour can be most advantageously employed in mining.

In reference to the mineral wealth of Aruba, I would state that the Island is divided into 17 mining districts, containing about 200 discovered lodes (and it is reasonable to presume many others exist that have not been exposed on the surface by erosion.) It is unnecessary for me to enter into details of the various lodes, as they have been thoroughly examined, and will be reported on by Frank Taylor, Esq., of the eminent firm of John Taylor and Sons. After a practical experience of 30 years in Cornwall, Mexico, and various portions of America, I fully realize the fact that it is a very difficult task to estimate the product of mines, particularly so when they exist in such numbers. And I venture to say that there is no parallel case on record where any one company desired estimates made as to the probable yield of

200 discovered lodes. In making my estimates I shall confine myself to such veins as are in my opinion not only of great promise, but are so located that the ores can be most conveniently and economically mined, and where there are sufficient of such in one district to justify beyond doubt the immediate erection of extensive machinery to reduce the ores. Of such mines in Bushiribana District we have five, viz :—

"Bushiribana"..	width of vein	3	feet,	will employ	35	miners
"North Bushiribana"	,,	6	,,	,,	15	,,
"Kadushi"	,,	3	,,	,,	25	,,
"Mativideri"	,,	25	,,	,,	30	,,
"Gato".....	,,	6	,,	,,	25	,,

In Calabasa District there are three :—

"Calabasa"	is 6	feet	wide, will employ	50	miners.
"North Calabasa"	2	,,	,,	10	,,
"Yanchi"	20	,,	,,	40	,,

In La Playa Districts, two immense lodes :—

"Tankelander" ..	is 30	feet	wide, will employ	20	miners.
"Meme".....	20	,,	,,	15	,,

In Paradera District, there are five :—

"Paradera".....	is 20	feet	wide, will employ	30	miners.
"Matadera"	12	,,	,,	15	,,
"Nuna"	6	,,	,,	10	,,
"Serro Crystal"..	3	,,	,,	10	,,
"Goldstein"	4	,,	,,	10	,,

In Cien Fuegos District there are eight :—

"Fort George" ..	is 50	feet	wide, will employ	50	miners.
"Cien Fuegos" ..	8	,,	,,	35	,,
"Serro Blanco" ..	20	,,	,,	50	,,
"West Serro Blanco"	6	,,	,,	20	,,
"Ricketts".....	40	,,	,,	20	,,
"Mira La Mar" ..	4	,,	,,	20	,,
"Schonberg"	4	,,	,,	10	,,
"Serro Puerco" ..	3	,,	,,	10	,,

In Urataka District there are two :—

"Urataka"	is 5	feet	wide, will employ	25	miners.
"Werleman"	6	,,	,,	10	,,

In Sombrero District there are two:—

"North Sombrero" is 4 feet wide, will employ 35 miners.
"Manasa"..... 25 ,, ,, 25 ,,

In Mosquito District there are three:—

"Mosquito"..... is 3 feet wide, will employ 10 miners.
"Taylor"..... 9 ,, ,, 35 ,,
"Shaffenberg".... 2 ,, ,, 10 ,,

Making a total of 29 lodes, the average width of the veins being 12 feet. None of these are traced for less than 400 feet, and many, such as Fort George, Bushiribana, Taylor, &c., are clearly traced from one half to one mile. And though I fully realise the difficult task of even approximating the number of miners that can be advantageously employed, and the quantity of ores that can be produced, I feel safe to take the result of my experience here as a standard by which to anticipate the future, and within the next three months, I will have the mines opened to such an extent as will give employment, on the above 29 veins, to 715 miners. And, considering the fact that the daily labour of the miners on lodes averaging 6⅔ feet was within a fraction of ¾ of a ton per day, I am sanguine that each miner can produce one ton daily from veins averaging 12 feet wide—thus making the daily product from those mines 715 tons, or 200,200 tons per year of 280 working days; and, as the mines become more developed, even this immense product can be materially increased. The cost of producing the ores should, in consideration of the increased width of the veins, and the fact that no expense for spalling, as heretofore, will be incurred, be estimated at fully 25 per cent. less than it has cost to produce it, which would make it $2\frac{36}{100}$ florins, or 4s. 0½d. per ton. I cannot estimate the value of the ores per ton, as none of them have been treated here. But the average of about 900 tons shipped to Greenville, United States, for treatment, was £16 6s. per ton. Cargoes of ore have been shipped to Liverpool, and of which no returns have as yet been received. Frank Taylor, Esq., had 135 tons of ore, which was not selected, broken from different veins, and shipped to Swansea for treatment. When you receive the returns from this ore, you will have a reliable basis upon which to estimate the value of the Aruba ores.

To utilise the wealth of the Aruba mines, it is necc ssary to erect

at once, extensive reduction works on the Island, so that the gold can be extracted here, and the pyrites concentrated and shipped to Swansea for treatment.

The stamp mills should be of medium light weight, say 500 lbs. each head. We have a never-failing and strong motor in the wind; consequently, ores can be reduced here at a very low cost. The wind, with the exception of, say, 15 or 20 calm days in the months of September and October, is constant, and the velocity is fully 16 to 20 miles per hour. The advantages to be derived from the use of wind as a motive-power cannot, in my opinion, be over-estimated. There exists not the least doubt of its continuance. To visit the Island and to notice the fact that all of the trees are, by force of the wind, prematurely bent in a westernly direction, and thus continue their growth, bears the strongest testimony in reference to its power. In all the districts mentioned, and in proximity to the mines, are most favourable sites adapted for the erection of the necessary mills and machinery requisite for the reduction of the ores.

The roads from and to the mines can, with a small expenditure, be made most excellent; and tramways could be speedily built, so as to connect the mines with the reduction works. In conclusion, I would call your attention to the fact that in the Roois (or Gulches) of "Fluit," "Chichi," "Chete," and others (according to the information we have from the most responsible old citizens of the island), the natives have found gold to the amount of 12,000 oz.

The method of saving the gold was that of washing the soil in "Batea" or troughs, and notwithstanding the crudeness of the method this large amount of gold was discovered. From researches made since my arrival here, there exists no doubt in my mind that these "Roois" can be made to yield immensely by the introduction of water. They are admirably located near the sea, and water can thus be most economically introduced. I should, therefore, earnestly recommend that a centrifugal pump, of say ten horse-power, together with the necessary hose or piping and sluice boxes, be erected so as to work the said Roois, and the result will, in my judgment, be a most successful and profitable one.

BENJAMIN F. RULE,

Superintendent and Mining Engineer.

6, Queen Street Place, E.C.
London, 5th June, 1872.

Gentlemen,—At your request, our Mr. Frank Taylor started on the 17th of February last to inspect the Island of Aruba in order to ascertain its mineral wealth.

After a stay of six weeks upon the Island, which he devoted to the examination of a great number of veins, he transmitted to this country samples of the gold quartz extracted from them under his supervision in sufficient quantities to be tested and assayed by competent persons. We consider his own evidence to prove the existence of the ores in great abundance, and the certificates of the assayers, who are entitled to our perfect confidence, show its value.

We herewith hand you his Report, which gives a full description of the Island, and also the assayers' certificate.

We remain, dear Sir,

Yours respectfully,

JOHN TAYLOR & SONS.

REPORT.

The Island of Aruba, a possession of the Government of Holland, is one of the Dutch Antilles, forming part of the colony of Curaçoa, 42 miles from Curaçoa, and is stated to be about 30 miles in length, with an average width of 7 miles.

Upon the north-east and windward side of the Island there is a range of mountains, and undulating ground extends over half the surface of the Island, which in places renders the country very picturesque. The mountains vary in height; they attain an elevation of 600 feet above the level of the sea at the three highest points.

The remaining half of the Island is comparatively flat, the surface being, to a great extent, strewn over with large boulders of syenite, making it in places difficult to cultivate. Still, there is a good deal of ground under cultivation; and two crops of corn a year are raised.

HARBOUR.

The town and harbour of Orangestadt are situated upon the leeward side of the Island, about 10 miles from the most north-west point.

The harbour is formed by a coral reef, which runs nearly the whole length of the leeward side of the Island, from a quarter to half a mile from the shore, forming for the entire length a perfect calm lagoon, affording a safe and convenient anchorage for vessels of considerable size, except in places where the coral, still growing, has made the water too shallow.

Vessels of 15 feet draught can pass over the reef at all times. By blasting away some of the reef, a very safe entrance could be made for large ships. Once inside the reef, there is water sufficient to float vessels of the largest size with perfect safety.

Cargoes of ore have already been loaded here, of from 200 to 300 tons. All large craft have to be loaded and unloaded by means of small boats. It would be an easy but rather expensive matter to run out a good quay, which would facilitate the landing of machinery and coal, and the shipment of ores.

There are two other points at which there is a safe anchorage for vessels. At Balashi, a very desirable place to erect a mill, there is a small lagoon running half a mile inland; here there is a place at which vessels of small size can cross over the reef and pass up this small lagoon. This can be deepened, and thus rendered accessible by larger vessels.

At West Point there is also safe anchorage for large vessels upon the leeward side, where the water is always smooth, but is not protected by a coral reef.

INHABITANTS.

The population of the Island may be stated at about 4,200, consisting of Government officials, merchants, labourers, and their families. The natives live by mining, agriculture, and fishing; they are a most industrious race, quiet, peaceable, obedient and very easy of control. The price of native labour as fixed by a decree of the Colonial Government is not allowed to be less than 75 Dutch cents per day for 9 hours' work, which is equivalent to 14d. English coin (calculating the premium on gold). Able-bodied natives are getting this now; they appear to be well satisfied and live comfortably.

LANGUAGE.

There are several languages spoken upon the Island; of course Dutch is the one most common amongst educated people; but English and Spanish are also spoken by some of the citizens. The language of the natives on the Island is called Papiamento; a corruption of the Spanish.

CLIMATE.

The climate, in spite of the great heat, is at all times healthy, which may be accounted for by the fine, strong breeze which is constantly blowing from E.N.E. The temperature varies but very little: at the coolest season, the thermometer stands at 82 deg. Fahrenheit during the day, and 78 deg. during the night; whilst in the hot season it is 88 deg. during the day, and 84 deg. during the night,—the average being 86 deg. in the shade. The greatest extremes known on the Island are 78 deg. and 92 deg. in the shade; but in the sun the thermometer generally rises to 140 deg., and sometimes higher. The only danger in this climate arises from excess of exposure to the scorching sun.

The rate of mortality is extremely low; no death occurred on the Island during my visit. The population is rapidly increasing.

The Island has never been visited by any violent disease, such as cholera, yellow fever, or small-pox.

WIND.

The wind is relied upon as the main motive-power of the Island, and for nearly ten months of the year it blows with a force and steadiness sufficient to justify the reliance which is placed upon it. In October and November, the rainy season upon this Island, calm days sometimes occur.

As to the average strength, from my six weeks' residence upon the Island, I am satisfied that it is a 15 mile per hour breeze, exercising a force of 1.25·lbs. per square foot. Thus a large amount of power can be obtained from properly constructed machinery.

The wind always blows from E.N.E. There is sufficient wind-power upon the Island to drive all the machinery that will be necessary to stamp the ore, pump water, and otherwise facilitate the mining operations contemplated in this report. This will be very valuable, for it is impossible to find a cheaper kind of power

than wind, as very little expense will be incurred after the machinery is once erected.

To take the utmost advantage of this power, spots upon which the mills are to be placed should be carefully selected in places where the wind will blow with regularity, and where as much of it as possible may be obtained when the breeze is light. In taking into consideration any uncertainty of the wind, it would be well to assume that the actual working will be limited to 280 days in the year, the calm days being turned to account for cleaning up and repairs.

WATER.

There is only one natural spring upon the Island, which is always flowing. It is situated at La Fontaine, close to the sea, and some miles from any of the large veins, and therefore of no value for milling purposes.

The drinking water is taken from wells sunk in the solid rock far enough from the sea to prevent it being brackish. Almost everywhere upon the Island water is found by sinking to some depth, usually only a few feet below the level of the sea. But most of the water used upon the Island is rain water, caught in large tanks or reservoirs during the wet season.

For milling purposes, except near the sea, the water must be pumped from wells, and this method is entirely practicable.

FUEL.

Wood cut from the brush and small trees growing upon the Island is the only fuel now used, except a small quantity of charcoal. Any amount of wood can be had from Venezuela, 14 miles distant, and costing little more than the expense of cutting and bringing it over.

Coal has recently been found near Coro, a town on the main land about fifty miles from Aruba. The seams are a few miles from the coast, and are reported to be large. I have shipped samples of this coal to Liverpool; for surface coal it is fair quality, and will probably improve very much below.

If these coal mines turn out well, fuel can be landed upon the Island for very much less than 10 dols. per ton, which is the present cost at Curaçoa of coal shipped from England and the United States.

TIMBER.

Upon the Island there is no large timber of value for mining purposes, but from Cumarebo, a port on the main land, any quantity of fine timber can be obtained at a low price.

Most of the trees are of hard wood, and therefore not cheaply cut into planks, &c.; but for timbering the mines they can be used with great advantage. Sawed timber may be obtained more economically in the United States.

The rough timber on the main land may be bought from the merchants, or a permit to cut down any quantity and ship it may be obtained from the Government. A large quantity will be required in the mines upon the Island; but I think in many cases masonry may be used with advantage.

Lumber or cut building timber at Curaçoa costs 42 dols. in gold per 1,000 feet.

LABOUR.

Out of the 4,185 inhabitants upon the Island, there are 600 able-bodied men who may be employed as miners and labourers; and as many more as are required can be brought from Curaçoa or Bonaire —a distance not exceeding 100 miles—by paying the expense of transporting them, and one florin (20d.) per day wages.

These men are strong, active, and above the average height; they are fine workers, and can labour all day in the scorching sun without being affected; they are very intelligent, and rapidly learn anything that is carefully shown to them. In fact, in my opinion, they are a very superior race, and will be able to do all the labour necessary.

This they do for 14d. a day, working 9 hours. It is evident, in my mind, that native labour is the best for mining purposes upon the Island.

Three years ago, no systematic mining had been done; not a hole had been blasted on the Island. Since then, however, the natives have become quite efficient workmen, and they will continue to improve until they make first-rate miners.

Therefore, it will not be necessary to import labourers, but only superior and skilled miners to take command of the natives.

HORSES, MULES, AND DONKEYS.

There were upon the Island at the beginning of this year, 12 *mules*, 46 *horses*, and 632 *donkeys*. As there is no wheeled vehicle upon the Island, all the transportation of goods is done by donkeys; all the ore from the mines is carried by them; they make two trips a day to a mine 8 miles distant, bringing down about 440 lbs. at a cost of about 8 cents. for every 100 lbs., the price varying with the distance.

Donkeys are now worth about 8 dols. each on the island.

If tramways are ever put down, I think mules would be the best animals to use; they can be obtained from the neighbouring coast of Goajiva for 100 to 150 florins per head, delivered on the Island.

The roads upon the Island are only donkey paths; but, with a few exceptions, they might be easily converted into good carriage roads.

GEOLOGICAL FORMATION.

The predominating rock upon the Island is syenite, which occurs in all stages of decomposition. By far the largest proportion of the veins occur in this class of rock. Clay slate, both solid and shaly, occurs upon the Island, and in it are some of the best veins.

There is also upon the Island porphyritic rock, syenite rich in hornblende, dioritic slate, diorite, and granite.

All round the island is a belt of coral limestone, in which there are no veins, varying in width from two hundred yards to two miles.

The south-east end of the Island is almost entirely composed of this limestone.

VEINS.

I believe that in this little Island there are more gold quartz veins than are known to exist in any other place of the same size.

Already about 200 veins have been discovered, all of which are visible by out-croppings; and it seems only reasonable to suppose that many more are concealed by the alluvium composed of loose rock and soil which has been washed from the mountains above.

Except in one district, the veins discovered are true gold quartz ledges, varying from 2 inches to 30 feet in width, running in all directions, and dipping at all angles.

The ore consists of quartz, varying from the purest white to the

darkest red in colour, containing iron pyrites almost without any exception; it also contains copper pyrites, oxide of copper, carbonate of copper, magnetic iron, &c., in variable proportions. It is usually solid, but, in some veins, rock full of cavities and honeycomb quartz is found.

The veins have, with few exceptions, very good foot and hanging-walls, with a clay seam, which is considered a favourable indication of a good and lasting vein.

DISTRICTS.

For convenience of description, I have subdivided the Island into the seventeen districts, as shown upon the map annexed to this Report:—

1. West Point.
2. Mosquito.
3. North Church.
4. La Playa.
5. Calabasa.
6. Paradero.
7. Hooiberg.
8. Bushiribana.
9. Urataka
10. Warawara.
11. Damari.
12. Sombrero.
13. Cien Fuegos.
14. Sabanita.
15. Yamanota.
16. La Fontaine.
17. Serro Colorado.

I.—WEST POINT DISTRICT.

MINES.

There are a large number of veins here very close together, some only a few feet apart, all running parallel, and dipping in the same direction.

I shall not describe them separately, but together. The following are those which yielded most gold:—

1. Capriles.
2. Von Long.
3. Dicco.
4. Comeyaya.
5. Tabushi.
6. Cigarro.
7. Henriquez.
8. Codicia.

&c.

9. Klashi.
10. Klashi Eman.
11. Bazaine.
12. Campesino.
13. Carcalito, 1.
14. ,, 2.
15. ,, 3.

&c.

Upon several more work has been done, but they never were specially designated, and are now quite concealed by piles of refuse thrown out from the larger mines. There is no doubt that there are 20 veins in this small space, with innumerable small strings and branches running from one to another. Very little can now be seen of the veins on account of the workings having fallen in to a great extent, and in many places the veins are covered by enormous piles of refuse taken from some of the deepest shafts, which are now, and have been for the last 20 years, half filled with water. I can only state here what I gathered from information received from most reliable people, most of whom had worked in the mines themselves.

It is stated that four of the veins, viz., Tabushi, Capriles, Von Long, and Cigarro, varied from a few inches to 3 feet in width. These were the largest; all the others run from 1 inch to 1 foot, averaging 8 inches.

From all the veins worked upon, a large quantity of gold was taken.

A quantity of gold was also found in small strings running through the country rock, in the neighbourhood of the veins; and again it is stated by some that gold was found in the country rock itself.

Nearly all the work at this place was done at the time when the right to work the minerals of the Island was thrown open to all, the only condition being the payment of a small amount to the Government for each man employed. Every vein was worked by a different man, with his slaves; hence names taken from the owners of the various veins.

About 1854 the water became so serious an obstacle that the miners, having only the rudest facilities, were obliged to abandon work.

They had fought against this difficulty for a long time,—in fact, from the time they reached 20 to 30 feet below the surface; and at last it became too strong for them, and they had to retire until proper and efficient pumping machinery could be brought to bear upon it.

At first, as these veins are close to the sea, I was afraid that the water came from the ocean; but careful investigation satisfied me that there can be no communication with the sea; and since the natives were able to keep the water out by hand, very little power will be required to pump the whole place dry.

The right way to deal with this will be to sink a perpendicular shaft (Mr. Rule has already sunk one 32 feet in a very desirable place), and by erecting good pumping machinery in it all the neighbouring veins will be drained. Having drained the old workings, it will be easy to clear out the refuse, and then decide upon the best places to continue operations. It would also be very desirable to drive out from the perpendicular shaft under the deepest workings; this could be done at slight expense, and it is well worth the effort.

The best evidence of the past riches of these veins,—and there is no reason why they should not be as rich in the future,—is the enormous amount of work done 20 years ago. There are thousands of tons of rock piled up in enormous heaps around and upon the veins.

Some of the shafts were from 30 to 40 feet square,—made that size so that the men could follow the dip of the vein, without having to work under overhanging rock, not having any timber to support the sides and keep the rock from falling in.

The deepest shaft is on the Tabushi vein, and is stated to have been, when the mine was abandoned, 62 feet in depth.

As far as can be seen, these veins continue essentially unchanged, both in length and depth.

The veins all run about E. and W., dipping S., but are nearly perpendicular.

The country rock appears to be a kind of dioritic slate, merging sometimes into clay slate, and sometimes into diorite. The rock is loose, and easily broken; it is very much twisted, and will require a good deal of timber when worked to any depth.

It is easy ground both to sink and drive in.

Near these veins is a very desirable spot for a mill, which would also be convenient for working the Mosquito ore.

16. HUEVO.

This is a small vein, a short distance to the north of the great workings described above.

It runs N.E. and S.W.

It is a vein about 3 ft. wide, but as only a small pit has been opened on it, nothing of importance can be stated.

It crops out at one point, but has been traced only a short distance. The quartz does not look of good quality.

The country rock is syenite.

17. ADICURARI I.

This is a small vein situated westward of the large workings.

IT RUNS 10 DEG. S. OF E.

It is a vein of loose quartz about 2 ft. wide. There are two open cuts,—one 60 ft. long and 10 ft. deep; the other is only small.

The vein is nearly perpendicular. Some gold quartz was shipped from here.

This vein did not look promising.

I panned a sample from here, but failed to get a colour of gold; but there was a large quantity of iron pyrites.

18. ADICURARI II.

RUN S.W. AND N.E.

This is another small vein close to the last, upon which are several pits; but all being now filled with refuse, little was to be seen.

The quartz looked favourable.

I panned a sample, which gave a fair colour of gold.

II.—MOSQUITO DISTRICT.

MINES.

19. MOSQUITO.

RUN 25 DEG. S. OF E.

This vein is about ¾ mile from and nearly E. of the West Point Diggings.

It is a small vein, visible only as a small string an inch or two wide at the surface, but increasing in size as it descends to 2 ft.

There are several small open cuts upon the vein, but nothing of importance was in sight.

All the ore that was shipped from here to Greenville, New Jersey, it is stated, yielded a very good percentage of gold.

The quartz looks extremely favourable. It contains a quantity of iron pyrites, and a little carbonate of copper.

The vein dips N. about 55 deg. from the horizontal.

The country rock is syenite.

I panned a sample from a small pile of the ore upon the surface, and obtained a very good colour of gold.

20. TAYLOR (Mosquito II).

This is by far the largest and most important vein in the district. It has been traced by bold croppings for nearly a mile, and everywhere it appears to be a large vein.

It is 200 yards S. of the last, and runs 35 deg. W. of S.

Upon this vein are two shafts about 20 ft. deep, and two small pits.

At the point where the shafts are, there is a massive out-crop of quartz, and the vein at the bottom is holding down from 7 to 8 feet wide, having distinct and solid walls, with a small band of clay between the vein and the country rock of syenite.

The vein averages 5 to 6 feet in width, and is nearly perpendicular.

The quartz is quite peculiar in character, coloured in places very much with green copper, and looking very favourable for gold.

I consider this one of the finest veins on the Island, and, owing to its great length and bold croppings, it ought to be worked.

I panned three samples from this vein, all of which showed a good colour of gold and a quantity of green colour.

I shipped to Swansea 10 tons of ore broken here.

21. SHAFFENBURG (Mosquito III).

RUN 35 DEG. N. OF W.

This vein is about a quarter of a mile W. of Mosquito. There is ono open cut upon it 73 feet long, from which some very rich ore has been shipped.

The vein averages about 1 foot in width, and is nearly perpendicular.

The country rock is syenite, which is loose and gives way easily.

The quartz looks very well, frequently showing free gold. It also contains a quantity of pyrites and hematite iron.

The open cut had so fallen in that the vein could not be seen in the bottom,—a fact which proves that it is quite impossible to work these veins without timbor.

This vein is small, but is well worth being worked upon.

I panned a sample, which gave a very good colour of gold.

I shipped 10 bags of oro from this vein, broken from one end of the open cut.

22. BRUIN.

RUN 10 DEG. N. OF W.

This is a small vein close to the last; upon it there is a small open cut 20 feet long. This is the only place at which the vein is visible.

It is 7 inches wide, and shows some beautiful quartz, free gold being frequently visible.

The country rock is syenite.

This is a very small vein, but it appears to be a rich one. I panned a sample, which gave a good show of gold.

23. VANDERBIEST.

RUN 40 DEG. E. OF S.

This vein is about a mile S.W. of Mosquito.

No work of any account has been done on it.

The vein is about 1½ feet wide, and has been traced some distance by the croppings.

The quartz looks well; a large quantity of it is very white.

The country rock is syenite. I panned a sample, which gave a very good colour of gold.

24. DE VERE.

RUN 25 DEG. S. OF W.

This is close to the last; it is a newly-discovered but small vein, upon which no work has been done. The croppings look promising.

The country rock is syenite. I panned a sample, which gave a fair colour of gold.

25. POZO DEL NORTE.

RUN 20 DEG. E. OF W.

There is a large open cut upon what appears to be a vein, broken up into several small strings. Nowhere could I see a solid vein; but there are several small strings of loose quartz.

The open cut is 110 feet long.

The country rock is syenite of a dark colour.

I have not a favourable opinion of this vein, though I panned a sample which gave a good colour of gold.

26. HUBEL.

RUN N. AND S.

This vein is close to the last, and I think probably one is only a branch of the other.

The vein is solid and 1½ feet wide; it is perpendicular, with very good walls of loose syenite of a darkish colour.

There is one open cut upon it 29 feet long and about 5 feet deep.

This is a superior vein to the last; still, the quartz does not look very promising.

I panned a sample, which gave only a tolerable colour of gold.

III.—NORTH CHURCH DISTRICT. MINES.

27. CASA BLANCA.

RUN 25 DEG. N. OF W.

This is a very fine bold vein, as shown by the croppings, which have been traced upwards of 300 yards.

At the N.W. part, there is one large open cut, showing a fine large vein about 4 feet wide, with very perfect walls. The open cut is 40 feet long, but shallow; and as it is now full of *debris*, little could be seen.

The quartz looks well, containing a good quantity of iron.

The country rock is syenite.

I panned two samples from this vein: both gave good colours.

I have shipped to Swansea 10 bags of this ore.

BRANCH.—At the point where the open cut is situated the vein is large, caused by the coming in of a very strong branch, running 10 deg. S. of W.

The croppings of this are very bold, and look almost like another vein.

I panned a sample from here, which gave a good colour.

28. TONY (Casa Blanca II).

RUN 30 DEG. W. OF S.

This vein intersects the last.

It has been traced for 300 feet, but no work has been done upn it. From the croppings I judge it to be a vein of tolerable size.

The quartz appears to be very white, and some of it is coloured with iron.

The country rock is solid syenite.

I panned a sample, which gave a good colour of gold.

29. PONTOON.

RUN TO S.E. AND N.W.

This vein is about a mile nearer town than the last, close to the West Point Road. It crops up at only one place, and the quartz is mostly white, but some contains iron. I also found some nice looking honeycomb quartz.

The country rock is syenite.

I panned a sample which gave a colour and a quantity of pyrites.

30. DELFINA.

RUN E. AND W.

This is another vein close to and similar in character to the last.

It is traced for 300 feet, and I consider it a very promising vein.

The country rock is syenite.

I panned a sample which gave a good colour.

IV.—LA PLAYA DISTRICT.

MINES.

31. TANKELANDER.

RUN 20 DEG. N. OF W.

This vein is situated about 4 miles from town, on the Calabasa Road.

No work has been done upon it.

At one point it is fully 20 feet wide.

It has been traced for upwards of a mile, and nearly the whole way the croppings are distinctly visible.

The quartz contains a quantity of brown hematite, but nevertheless looks favourable for gold.

I panned a sample from this vein, which gave a fair colour of gold.

I have shipped 10 bags of this ore.

32. MEME.

RUN 35 DEG. N. OF W.

The vein is about one-third of a mile N. of the last. It is another vein which shows bold outcroppings for a considerable distance.

The quartz looks better than the last. I found some pieces of very nice looking honeycomb quartz, in which some free sulphur was found.

At two points the vein looks very large, but as no work has been done, it is quite impossible to judge as to the exact width.

I panned two samples from here, which gave colours of gold and a quantity of pyrites.

I shipped hence 10 bags of ore.

33. KING COTTON.

RUN N. AND S.

This vein is one-quarter of a mile S.W. of Tankelander, on the Calabasa Road.

At this place there are a quantity of large boulders of white quartz, but very little solid rock is to be seen; and it was difficult to ascertain the exact course of the vein. I am confident that there must be a good-sized vein below the surface.

The quartz is mostly white, and does not look quite so promising for gold as most of the others.

The country rock is syenite.

I panned a sample which gave a good colour of gold.

V.—CALABASA DISTRICT. MINES.

34. CALABASA.

RUN S.E. AND N.W.

This I regard as one of the finest veins upon the Island, and upon it extensive operations may at once be carried on.

It is situated about 6 miles from town, near the N.E. coast of the Island.

Upon this vein are several open cuts and shafts, which have developed it at different points for 665 feet, and beyond this it has been traced a considerable distance by croppings.

One shaft is 45 feet deep, at the bottom of which the vein is is about 2 feet wide. At one point, where there is a mass of quartz, a large open cut has exposed the vein for 132 feet in length, and at the deepest point 25 feet.

There are numerous other small open cuts, in all of which the vein averages 5 feet wide, whilst at one point it is at least 20 feet wide.

The vein is nearly perpendicular, dipping only slightly to the south.

The country rock is syenite, which in most places is soft and loose, and requires timber to render it safe to work more than 30 feet in depth.

The quartz is mostly white, with streaks coloured with iron, some containing a quantity of pyrites. Sometimes visible gold is seen in this ore.

The vein is solid, and has tolerably smooth walls, with a talcose flucan between the quartz and the country rock, which is always considered a good indication; it also facilitates the working of the vein.

I panned four samples of ore from this vein, all of which showed a good colour of gold.

I shipped from here 10 tons of ore.

35. NORTH CALABASA.

This vein is parallel to and only about 60 feet to the north of the last.

It is a smaller vein, but from the appearance of the quartz it is richer.

The average width is 1½ feet, but in some places at the surface it is as much as 4 feet wide.

The work done consists of 3 open cuts of considerable size, and one shaft, 47 feet in depth. In the bottom of the shaft the vein is 20 inches wide, and looks extremely well. In the open cuts not much is to be seen, owing to *debris* having fallen in and covered the bottom.

The walls of syenite are good, but timber is required to make it safe to sink any depth.

Like the last, this vein has a clayey "flucan," between the vein and the country rock.

I panned four samples from this vein, all of which gave good colour of gold.

I have shipped 20 bags of the ore.

BRANCH.—Near the shaft a very fine branch runs into the vein from the north.

There is upon it an open cut, 50 feet long and about 15 feet deep, from which a great deal of quartz has been taken.

36. BATES. 37. LLOYD. 38. ANITA. 39. LYON.

These are all new veins, upon which no work has been done, situated from 50 to 300 yards distant from Calabasa.

The croppings of all look favourable; but as no work has been done upon them, it is quite impossible to form an opinion as to their width or value. I panned samples from all, and every one gave a slight colour of gold.

40. YANCHI.

RUN 20 DEG. N. OF E.

The vein is about a mile N.W. of Calabasa.

It consists of a small mountain of quartz, standing 20 to 30 feet above the surrounding ground.

It has not been traced for any length, but, at this point, there are thousands of tons of quartz that can be easily broken.

The quartz is as white as snow, and looks as if it could not possibly contain gold without its being visible; but I panned one sample of the very whitest rock and one a little coloured with iron, and both gave a colour of gold.

I shipped 10 bags of ore from here.

41. ODUBER.

RUN N.E. AND S.W.

This vein was discovered during my stay in Aruba. It is situated about a mile south of the Pozo del Norte and Hubel veins.

No work has been done on it, but the croppings are very bold, and the vein is undoubtedly a large one.

The quartz looks well, containing some iron pyrites.

The country rock is syenite.

I panned a sample, which gave a good colour of gold.

BRANCH.—There is a branch upon this vein, running 20 deg. N. of E., which shows some very bold out-croppings.

VI.—PARADERO DISTRICT.

MINES.

42. PARADERO.

RUN 35 DEG. N. OF E.

This vein is situated close to the Bushiribana road, and about 4½ miles from town.

It is an enormous vein, cropping out several feet above the ground.

As no work has been done upon it, there is difficulty in making statements as to its width; but certainly, at one point, it is a gigantic vein.

The quartz is white, slightly coloured with iron, and looks rather poor; but here a very large quantity of ore could be broken, and might be very profitable, although it were low grade.

The country rock is syenite.

I panned two samples from this vein, both of which gave a fair colour.

I shipped from here 20 bags of ore.

BRANCHES.—There are two branches from this vein, striking north; one is 4 and the other 2 feet wide; both looking promising, and well worthy of investigation.

43. SOUTH PARADERO.

RUN 30 DEG. S. OF W.

This is another large vein, nearly parallel and a little S.W. of the last.

It crops out boldly, and is a vein of from 5 to 6 feet in width.

No work has been done upon it.

The quartz looks favourable for gold, and a sample which I panned gave a slight colour.

This vein is well worthy of further development.

44. JUPITER.

RUN N.E. AND S.W.

This vein is about 200 yards W. of the last.

The croppings do not show much; it it only a small vein. The quartz does not look very favourable.

No work has been done upon it. I panned a sample from here, which gave a good colour.

45. MARTIN.

RUN 10 DEG. N. OF W.

This vein is about a quarter of a mile S.W. of the last.

This is another vein, showing croppings for a considerable length, but upon which no work has been done.

The quartz looks tolerably well, some of it containing a good deal of hematite iron.

It is a good-sized vein.

I panned a sample from here, which gave a good colour of gold.

46. NUNA.

This vein is about half a mile south of Calabasa.

At the point where there has been a little work done, this vein appears to be taking a peculiar curve, but afterwards it runs away straight, as shown by the croppings.

It is a very strong-looking vein, of about 5 feet in width, with very smooth walls. This is well worthy of development.

The quartz looked extremely well, and from two samples I got two very good colours.

I shipped from here 6 bags of ore.

47. HENRY.

RUN 15 DEG. E. OF S.

This is another vein, which appears to be large by the outcroppings, situated half a mile S.W. of the last.

The quartz looks very white, but promising.

48. MATADERO.

RUN 30 DEG. E. OF S.

This is another, close to the last; it is a large vein, and the quartz looks very favourable indeed.

No work has been done upon it, but, judging from the appearance at the surface, it certainly ought to be developed.

It has been traced for a considerable length.

I panned a sample from here, which gave a slight colour of gold.

I shipped 10 bags of this ore.

Branch.—There is a small branch from this vein. It may be traced for some hundreds of feet; the croppings look tolerably good.

49. CRYSTAL.

RUN 15 W. OF S.

This vein runs over the top of Serro Crystal, which is about ½ a mile W. of Bushiribana.

It runs down the side of the mountain to the gulch, so that by driving from the gulch on the vein it could be worked very well with an adit level.

It is traced for about ½ of a mile, the croppings being visible the whole way.

It appears to be a regular and solid vein of about 2 feet wide, the quartz being very crystalline indeed, and looking well.

There are 4 small open cuts upon the vein, but very little ore has been broken, and but little of the vein is to be seen where worked upon.

The country rock is syenite, and is very loose.

I panned a sample from here, which showed a good colour of gold.

I shipped 10 bags of the ore.

50. RULE (Crystal II).

RUN 10 DEG. E. OF S.

This vein is close to the last, and runs down the side of the mountain in the same manner.

It has been traced for about ½ of a mile, and has been opened in two places, 400 feet apart.

This vein is similar to the last, only larger, consisting of the same crystalline quartz, which is quite peculiar to the veins on this mountain.

I panned two samples from this vein, neither of which showed a colour of gold, but a quantity of iron pyrites.

I shipped from here 10 bags of ore.

51. ISOLA.

RUN N. AND S.

This is another small vein near the last, but as there is only one open cut upon it, I could see but little.

It has been traced for a ¼ of a mile, and as there is a large quantity of float rock lying about, I think it will probably be found to be a larger vein below than it looks upon the surface.

Where it is to be seen it is only 2 feet wide, the quartz being of the same nature as the last two veins.

The country rock is syenite.

I panned a sample from this vein, and obtained a good colour of gold.

52. GOLDSTEIN.

RUNS 10 DEG. E. OF N.

This is the most westerly of this group of veins, and has been traced for half a mile, running right over the top of the mountain, rendering it also easy to work by driving below on the vein.

Upon the top of the mountain are two small open cuts on the vein, but as they are only 5 feet deep, little can be seen.

The vein is 4 feet wide of solid quartz of the same nature as the others, but looks more favourable for gold than any of them.

The country rock is syenite, and in places a combination of syenite and diorite.

This I regard as a very promising vein.

I panned a sample, which gave a good colour.

I shipped 10 bags of the ore.

BRANCH.—From this vein there is a branch going away E. which looks well.

53. TROPIAL.

RUN 25 DEG. W. OF S.

This is a small vein at the foot of Serro Crystal, close to the Bushiribana Road.

It is only a foot wide at the place where it has been worked upon.

The quartz looks rich.

The country rock is syenite.

It has been traced for a considerable distance, but owing to the great thickness of the cactus, it was impossible for me to follow it.

I panned a sample of the ore, which gave a very good colour.

54. BLUEMONT.

RUN E. AND W.

This is a large vein, cropping out very boldly at one point. It is situated about ¾ of a mile E. of Paradero.

It is traced for only a short distance, and no work has been done upon it.

The quartz is very white and glassy, with a tinge of carbonate of copper.

The country rock is syenite.

I panned a sample from here, which gave a slight colour of gold.

55. BARNASHI.

RUN 20 DEG. E. OF S.

This is a very small vein near the last, upon which a little pit has been dug, showing a vein only 10 inches wide of extremely fine looking quartz.

It is traced for only a short distance, and is too small to be of much mportance.

The country rock is syenite.

I panned a sample, which gave a slight colour of gold.

56. SHAMY.

RUN S.E. AND N.W.

This is another small vein close to the last.

It is but 6 inches in width, and dips very flat indeed.

There is one small open cut, which shows the vein very regular in its dip, but very small.

The quartz looks extremely well, and it is stated that some ore worked from here was very rich indeed.

It is traced for about 200 feet upon the surface.

I panned a sample, which gave a very good colour of gold.

57. JOHN EMAN.

RUN 30 DEG. S. OF W.

This vein runs for a considerable distance close to and parallel with the Bushiribana Road, and can be traced for quite a mile by its croppings.

No work has been done upon it. It is about a 4 feet vein.

The quartz is of a peculiar appearance, very much coloured with iron, and, curiously, it contains a little silver.

I panned two samples from here; both gave a colour of gold.

I shipped 10 bags of the ore.

58. HERMITA.

RUN N. AND S.

The vein is about a quarter of a mile N.W. of Paradero.

There are large croppings which can be traced for 500 feet, and without any doubt it is a fine, big vein.

The quartz looks promising.

I panned a sample, which gave only a slight colour.

BRANCH.—There appears to be either another vein or a large branch intersecting the vein, running about 35 deg. E. of N.

59. SHIRIBANA.

RUN 10 DEG. N. OF W.

This is another large vein cropping out close to the last.

The quartz looks favourable; it is very red and slightly coloured with carbonate of copper.

It is traced for a considerable distance.

I panned a sample, which gave a good colour.

60. GRANT.

RUN 10 DEG. W. OF S.

This vein is near the last; it has not been traced far, but at one point there is an enormous mass of quartz cropping up above the surface.

No work has been done upon it.

The quartz is very white, but looks favourable for gold.

I panned a sample, which gave a colour of gold.

VII.—HOOIBERG DISTRICT.

MINES.

61. HERNANDEZ.

RUN 20 DEG. E. OF S.

This vein runs close to the foot of Hooiberg Mountain, and is about 3½ miles from town.

This is a large vein which crops but for quite ¼ of a mile in some places very boldly.

There are two small open cuts on the vein, both now full of *debris;* but the vein can be seen at one point, and there it is four feet wide.

The quartz contains a large quantity of brown iron, but at the same time looks favourable for gold.

I panned a sample from here, which gave a good colour of gold.

62. WEST HERNANDEZ.

RUN S.W. AND N.E.

This vein crosses the last, and appears to belong to the same class of vein, except that the ore contains considerably more iron pyrites.

It has been traced for nearly ½ a mile, passing close to the foot of Hooiberg Mountain.

VIII.—BUSHIRIBANA DISTRICT. MINES.

63. KADUSHI.

RUN E. AND W.

This is at present the most important mine in the district, and one of the best on the island.

It is about six miles from town, and half a mile from the N.E. shore.

The vein, which averages five feet in width, consists of some beautiful white quartz, and some coloured red by decomposed iron, it frequently showing free gold; it also contains iron pyrites and a little carbonate of copper.

It is solid, and requires blasting to be worked properly; it has two beautiful walls, upon both of which is a talcose clay.

The country rock is syenite, tolerably firm.

The vein is nearly perpendicular, dipping only slightly to the S.

There is one large open cut, 90 feet long and from 20 to 30 feet deep, upon this vein; there are also two shafts each 35 feet from the surface, or a little below the bottom of the open cut. One

of these is full of water; the other is still sinking on a good vein, five feet wide, and is well-timbered from the surface, which will render it valuable for future operations.

The vein has been laid open for a length of 400 feet upon the surface, and has been traced by croppings considerably further.

I have a very high opinion of this vein.

A good quantity of ore may be taken from here at once, by opening out at other points.

I panned seventeen different samples from this vein, every one of which showed a colour of gold; some of them were quite magnificent shows. In some cases the tailings were re-washed, and always showed a colour of gold.

It is worthy of remark, that the very whitest rock gave a good colour of gold.

I shipped ten tons from it, which has been pulverized at Swansea, and tested by Fred. Claudet, Assayer to the Bank of England, yielding about eight guineas per ton.

64. BUSHIRIBANA.

RUN E. OF W.

This vein is about a quarter of a mile to the E., and nearer the shore than the last, situated only a very few feet above the sea.

There is one large and several small open cuts on the vein; unfortunately, the big open cut, in the bottom of which there is a shaft, is half full of water, and has partially caved in from want of timber. The vein averages two feet in width, but it is stated that at the bottom of the shaft, which is 54 feet deep, the vein is fully three feet wide.

The vein dips only a little to the S.; it has extremely regular walls of diorite, which rock requires timber to render work to any considerable depth safe.

It has been traced for upwards of a mile, and is easily recognised by its characteristic quartz. It runs the whole way in a belt of diorite traversing the syenite.

The quartz is quite peculiar, owing to its always being much coloured by carbonite of copper, and looks very favourable for gold, sometimes showing it in a free state.

I panned three samples taken from different points on this vein, all of which gave very good colours.

I shipped ten bags of this ore.

This I regard as a very good vein, and one which could soon be made to yield a quantity of rock.

There will always be a little water to pump from the vein, but as the water is pure, there can be no connection with the sea.

65. NORTH BUSHIRIBANA.

RUN E. AND W.

This vein is only about 50 feet to the north of the last, and runs parallel to it.

There is one shaft 32 feet deep on this vein, still sinking and well timbered, in the bottom of which the vein is 5 feet wide, but rather broken up, consisting of strings of quartz mixed with greenstone, but on the surface the vein is more solid and regular.

There is also a large open cut 92 feet long, now all full of *debris*. This vein is also in diorite and is nearly perpendicular; it has been traced for about 400 feet.

The quartz has much the same appearance as the last. I panned two samples, both of which gave good colours, showing a quantity of rough gold. This is likely to prove to be a rich vein.

I shipped six bags of the ore.

66. LAMPE.

This vein crosses the Bushiribana vein close to the open cut, and at the point of intersection is a shaft, now full of water.

There are two other shafts in the vein about 16 feet deep, in both of which the vein is rather broken up; but still there are 2 feet of solid quartz.

The appearance of this vein is very good, and I think it will become more solid below.

The quartz is rather white but looks well for gold.

The country rock, except where it crosses the Bushiribana vein, is syenite.

I panned a sample which gave a good colour of gold.

I shipped 10 bags of the ore.

67. SAMPSON. 68. NO NAME. 69. GALGO. 70. MARIA. 71. TASMANIAN.

These 5 new veins are all close together and situated from 50 to 200 yards S.E. of Kadushi.

They all show croppings, but upon none has any work been done. They all appear worth a trial.

I panned samples from all, and every one except "Galgo" gave a colour of gold.

The colour obtained from "Maria" was especially good. From this last vein I shipped 6 bags of ore.

72. LITTLE IKEY.

This is a large mass of quartz near the Bushiribana and Lampe veins.

The quartz is white, and looks well. No work having been done on it, nothing definite can be stated.

There is probably a large vein below the surface at that point.

73. SERRO HACHA.

RUN 30 DEG. W. OF S.

This vein is situate upon one of the arms from the Matividiri Mountain, about a mile S.E. of Bushiribana.

It is an extremely promising little vein, but it has been traced for only a short distance; it is solid, 2 feet wide, with very regular walls.

The quartz looks very favourable, and free gold is frequently visible in the rock.

There is only a small open cut upon the vein.

I panned a sample which gave a first rate colour of gold.

I shipped 6 bags of ore from this vein, which ore yielded 4 oz. 18 dwts. per ton, equal to £20 sterling per ton.

74. MATIVIDIRI.

RUN 20 DEG. S. OF E.

This is one of the largest veins upon the Island, and as it runs up the side of the mountain for a great distance it can be economically worked. It would be a very simple matter to drive on the vein from the lowest point at which the croppings are traced, and thus work it with great advantage.

The vein is traced for quite 1,000 feet, and from the croppings at the surface it is 20 feet wide or more.

The quartz all looks favourable.

No work has been done, but one of the first operations I should recommend would be to drive a level on this vein and prove it.

The country rock is syenite.

I panned a samplo from here which gave an excellent colour of gold.

I shipped 20 bags of this ore, which, from assays made by Fred. Claudet, Assayer to the Bank of England, yielded 6 guineas per ton.

75. MATIBIN.

This vein is close to the last, but I was unable to visit it.

It is statcd to be small but rich.

There is one small shaft upon it, in which there was a very large and curious cavity in the vein.

76. CARRIBEAN.

RUN S.E. AND N.W.

This is a new vein lately discovered upon the Matividiri Mountain, which is promising, but small.

It has been traced only a short distance, and no work has been done on it.

The quartz looks tolerably well.

I panned a sample, which gave a good colour of gold.

77. GATO.

RUN S.E. AND N.W.

This vein is situated on the north side of the Matividiri Mountain, close to the sea shore, but some way up the side of the mountain.

It is a fine bold vein, and at least 5 feet wide; in one place the croppings stand up 6 feet above the surface, and at another place it has turned over in a curious manner.

The quartz looks promising.

I panned a sample, which gave a good colour of gold.

78. PETERS.

RUN 20 DEG. W. OF N.

This is a new vein intersecting the last. It is a fine bold vein,

the width of which it is impossible to tell until some work is done upon it.

I panned a sample, which gavo a good colour of gold.

79. TRAS MURALLA.

At this place there is a very large quantity of looso quartz, apparently coming from several small veins, which, in my opinion, will mako one solid vein in depth. A little to the east of this point, Mr. Rule has worked on what appears to be the same vein, which has become settled: it runs east and west, and dips to the north very flat. The vein looks only tolerable, the quartz being very loose—but it may only be so near the surface.

The quartz looks very favourable, and I picked up pieces in which gold was visible.

This vein is situated about 500 yards south of Kadushi.

Three samples panned from here gave very good colours of gold.

I shipped 10 bags of the ore.

80. COROBODI.

RUN 10 DEG. N. OF W.

This vein is half-way between Bushiribana and Paradero; it is very small indeed, only averaging 5 inches in the places I examined. It appears to be rich, the remark applying especially to the concentrated pyrites.

There are three open cuts on it, one of which is 12 feet deep.

There are several strings of quartz running through the sycnite in the vicinity of the vein, which may make into larger below.

It has been traced for upwards of 500 feet.

Unless the ore is very rich, this vein is too small to be of any importance.

I panned two samples, which gave only a slight colour of gold.

IX.—URATAKA DISTRICT.

MINES.

81. URATAKA.

RUN 10 DEG. W. OF N.

This vein is situated six miles due east of the town, at the foot of the Urataka Mountain.

There has been a great deal of work done on this vein, and there are as many as 10 open cuts, some large ones, within a distance of 1,643 feet. The vein upon the surface for this length has thus been proved.

None of these open cuts are more than 50 feet deep, as it was found impossible to sink without timber.

The width of this vein varies very much, but on the average it is 3½ feet wide.

The vein is loose in places and in others solid, but on the whole it is promising, and it is one upon which operations may be carried on with great success.

There is a little water in the shafts now, but it is only from the rain.

The quartz to me appeared to be rich, and ore treated from here has yielded well.

With a little timber, a quantity of rock could be soon obtained.

The country rock is a loose syenite. I panned two samples from here, both of which gave good colours of gold.

I shipped 5 tons of the ore.

82. CHABORURI.

RUN N.E. AND S.W.

This vein is about ½ a mile north of the last.

There is one large open cut, 39 feet long and 23 feet deep, in which nearly all the vein is standing on the footwall.

The vein is from 1 to 2 feet wide.

The quartz is very favourable in appearance.

The country rock is syenite.

It is traced for a considerable distance upon the surface, and altogether it is a very promising vein.

I panned a sample, which gave a slight colour of gold.

I shipped 10 bags of the ore.

83. WERLEMAN.

RUN 30 DEG. E. OF N.

This vein is ¼ mile N. of the last, and has been traced upon the surface for upwards of ½ a mile, the croppings for a considerable length being very prominent.

This is a fine large vein, and the quartz looks extremely well; it should certainly be worked upon at the earliest opportunity.

No work has been done except on a branch running N., upon which there are 2 open cuts.

I consider this a large vein.

The country rock is syenite.

The quality is quite up to the average in appearance.

I panned a sample, which gave a good colour of gold.

I shipped 10 bags of the ore.

84. AIJO.

RUN 20 DEG. N. OF W.

This vein is about ¼ of a mile further N. still, and is of very white quartz. It is about 3 ft. wide, and very solid.

There is an open cut upon it 47 ft. long, but shallow, in which the vein is very regular.

The country rock is a combination of diorite and syenite.

I panned a sample from here; it gave a colour of gold.

I shipped 10 bags of this ore.

X.—WARAWARA DISTRICT.

MINES.

85. WARAWARA.

This vein is traced by its croppings for ½ a mile.

The quartz looked well, containing a quantity of carbonate of copper.

I panned a sample, which gave a very good show of gold.

86. BALASHI COPPER MINES.

These veins, or rather deposits, are situated on the hill about ¼ of a mile N. of Balashi and 7 miles from town.

These deposits have been worked.

There appears to be three series of these running parallel and close to each other.

All the bottoms being covered up, nothing could be seen, except at a few places on the sides, which consist of small seams of very poor carbonate of copper with a little rich sulphuret of copper.

I regard these deposits as of very little importance.

XI.—DAIMARI DISTRICT.

MINES.

87. SANTA LUCIA.

RUN E. AND W.

This vein is situated upon the side of the Santa Lucia mountain, about 9 miles from town.

It is traced for a considerable distance down the side of the mountain, and it might, therefore, be advantageously driven on from below.

There is one open cut 29 ft. long, and in one place 19 ft. deep on the underlay of the vein, which dips 65 deg. from the horizontal. In this pit the vein is 12 inches wide, of fine solid rich looking quartz, with very smooth walls of syenite.

The quartz looked above the average. The sample which I panned failed to show a colour of gold.

I shipped 10 bags of the ore.

88. EVERTSZ.

RUN 20 DEG. OF E.

This vein is near the last, but upon the other side of the mountain, where it has been worked upon about the same height above the sea.

There is an open-cut, 32 feet long, and about 10 feet deep, now full of water and mud; little of the vein was therefore to be seen.

Where it is visible, it is about 1 foot wide, of loose quartz and clayey matter, but further east are some croppings which look better.

The vein has been traced for about 100 feet; it is well worthy of further trial.

I panned a sample, which gave a good show of gold.

89. JEAN CROES.

RUN 30 S. OF W.

This vein is lower down the mountain than the last, in the bottom of a small gulch.

There is one large open cut, 81 feet long, upon it, and only 10 feet deep, but it is now half full of dirt.

Little is to be seen of the vein; it is, however, stated to be a good one in the bottom. The quartz scattered round looked favourable.

I panned a sample, which gave a good colour of gold.

90. GRAVENHORST.

RUN 30 DEG. N. OF E.

This vein is near and parallel to the last, only about 50 feet to the south; there are two open cuts upon it, one very large, 69 feet long and 27 feet deep, from which a quantity of quartz was taken; the bottom was all covered with *debris;* and the vein at each end has gone into a mere string.

The other open cut is 21 feet deep, only partially full of water; the vein at the bottom is stated to be 3 feet wide.

At the surface it is 1½ feet wide, and is very fine looking.

The quartz looks well, and it is stated that rock treated from here yielded well.

This is a very promising vein, and will well repay considerable outlay.

I panned a sample from here, and it gave a good colour of gold.

I shipped 10 bags of the ore.

91. DOCHI.

RUN 20 N. OF E.

This vein is situated about half a mile N.W. of Andekuri, on the top of a mountain.

There is one small open cut upon it, about 30 feet long, from which a quantity of clayey matter very rich in gold is stated to have been taken.

The quartz looks tolerably well, but not up to the average.

The vein is small, and appears by the croppings to run some distance down the mountain side, which is advantageous for future operations.

I panned two samples, in one of which there was so much iron pyrites that it was quite impossible to show gold if any had been present; the other showed a little gold.

92. JEROMCHI. 93. CURACOA. 94. ARUBA. 95. BONAIRE.

These four mines have all been worked for copper, and upon

each of them there is a large open cut, now either full of refuse or water, in which nothing whatever is to be seen.

They are bunchy veins, containing a little red quartz, and here and there a pocket of copper ore.

The country rock is a dioritic slate. I have a very poor opinion of the value of these veins for copper.

I think they will make into gold veins in depth, and contain these pockets only near the surface.

I panned samples from these veins, two only of which showed gold.

96. ANDEKURI.

RUN N.E. AND S.W.

This is a very small vein, close to the house at Andekuri.

There are two small open-cuts upon it, in which the vein is about 5 inches wide of very nice looking solid quartz; it has been traced for 100 yards, but is too small to be of much importance, unless the rock is very rich. The country rock is syenite.

I panned a sample, which gave a very good colour of gold.

97. BANANA. 98. PERIQUITO. 99. COTA.

These three veins are very similar to the four described above.

There is an open cut upon each of them, which in every case is full of *debris*. They are the same bunchy veins, which must have been worked for copper, but which contain some gold quartz; the last one contains some ore very rich in iron.

I have a very poor opinion of these veins, but of course I saw them under disadvantageous circumstances. By cleaning out the pits and prospecting, they may be proved to possess value.

Only one of them panned gold.

100. CUDAKARI.

RUN 10 DEG. S. OF W.

This vein and the three following are situated close together, half way between Daimari and Andekuri; it is about one foot wide, and is stated to have yielded some very rich ore.

There is one large open cut upon it now full of water. Above

the water the vein is loose, but below the water it is stated to be solid.

Where it is visible the quartz is red, and contains a quantity of pyrites. It looked like rich rock.

The country rock is very loose, and easily caves, requiring timber.

The vein is traced for a considerable distance.

I panned a sample, and got a good colour of gold.

101. CUDAKARI II.

This vein is close to and runs paralled with the last, but as the open cut upon it is entirely filled with *debris* from the others, I could not see a vestige of the vein; it is stated to be very small but very rich.

102. CUDAKARI III.

RUN 20 DEG. S. OF W.

This vein runs slightly more to the N. than the others, and it is very likely that they will all form into one.

Upon it are several open cuts, one 76 feet long, but being full of water at the time of my visit, I could see but little of it; where I was able to see it, it averaged 1½ feet in width, and in one or two places it is very solid, containing a quantity of pyrites. It is traced for a considerable distance. These veins are well worthy of a further trial, and I am confident some rich rock may be taken out.

I panned a sample, and got a colour of gold.

103. CUDAKARI IV.

RUN E. AND W.

This vein is a little higher up the side of the hill than the others, and is also a small one, being about 12 inches wide where it has been worked upon; but there are some bold croppings a little further to the E.

The quartz looks extremely well; some of it is honeycombed.

The country rock is dioritic and very jointy.

I panned a sample, which gave a colour of gold.

COPPER MINES.

104. LA VIGILA.

RUN 25 DEG. N. OF W.

This vein is stated to have yielded more copper than any other on the island, but here it appears to have been taken out in bunches, and does not occur regularly in the vein.

Where it is now visible, it looks like a tolerably good vein for gold quartz; it is 1½ feet in width, and contains a very large quantity of iron but very little sign of copper.

Upon this vein there are several open cuts, but they are all caved in and half full of *debris*; nothing of importance therefore is to be seen. It is traced for 500 feet, and I have not much opinion of it for copper, but it is well worth a further trial.

105 to 109. CALIENTE. 1, 2, 3, 4 and 5.

The same remarks will apply to all these. They are situated all together near the last, and upon every one an open cut or two may be seen, from which it is stated some rich copper ore has been taken. But now they are full of water and dirt.

From one or two we picked up some rich pieces of copper ore.

These veins I do not at present consider of any importance.

I panned two of these, and both showed gold.

None can be traced for any distance.

110. COCO.

RUN E. AND W.

This vein is closed to Daimari, situated upon a steep cliff, about 60 feet above the sea level, and by driving a cross cut about 70 feet it could be cut at 40 feet below the croppings.

It is 1½ feet wide, but is traced for only a short distance.

The quartz contains a good deal of iron, but some of it is honeycombed and looks promising for gold.

We picked up some pieces of copper ore, but nowhere could I see any in the vein.

I regard this as a gold quartz vein, containing pockets of copper ore.

I panned a sample from here which gave a slight colour.

111 to 114. CACHAPA, I., II., III., & IV.

These veins are close to Daimiri, but situated nearer the sea than the last.

They are all true gold quartz veins, so far as an opinion can be formed from the cropping.

No work has been done upon any of them, but from the appearance of the rock, they are well worthy of a trial. The croppings are bold, and two of them seem to be large veins.

The country rock is of a peculiar nature. It appears to be a species of conglomerate, but still very solid.

I panned a sample from all the veins, every one of which gave a colour of gold.

115 to 121. HORMIGA I., II., III., IV., V., VI., & VII.

These closely resemble the Calientes.

Upon all some work has been done, on some only a little, and on others a great deal. But in every case except on, the open cuts are full either of water or *debris*. They appear all to have been worked for copper and scattered about; we found some pieces of ore; in all there is to be seen gold quartz.

From No. 2 I have shipped 20 bags of ore, which will give us information as to its richness.

From the amount of work done upon these veins, a large quantity of ore must have been taken out. No. 6 is quite a nice looking quartz vein, two feet wide, with about one foot of good quartz.

I panned samples from four of the veins, Nos. 4, 5, 6, 7, all of which gave a colour of gold.

122. HORMIGA VIII.

RUN N. AND S.

This vein is near the last, but has quite a different course and character.

It is a true quartz vein, 1½ feet wide, and has a very favourable appearance; it contains a quantity of iron, and some honey-combed rock.

There is only one small open cut upon it, in which little is to be seen; still, from what I could see, this is a vein well worth prospecting.

It runs down the side of a mountain, and might be worked by a level with advantage.

I panned a sample, and obtained a good colour of gold.

123. PISHOT.

This is nothing more, in my opinion, than a continuation of Hormiga 7, only over the hill.

There has been a great deal of work done, but no trace even of a vein is now to be seen.

I regard this vein as of no real value.

124. ESPANAGO 125. BARTOL. 126. DAVIDSON.

These three veins are situated near to each other on a mountain, about one mile south of Daimari.

They are all true gold veins; the two first of which crop out very boldly in one place, but otherwise they appear to be small.

A little work has been done on all of them, but nothing of importance is to be seen.

The quartz in all of them looks tolerably well.

I panned samples from all, and all showed gold.

127. NORD KAP I.

RUN S.E. AND N.W.

This vein is about two miles along the coast from Daimari in a south-easterly direction. It is about 4 feet wide, dipping south, very flat indeed.

The quartz is very white, containing a quantity of arsenical pyrites, stated to be rich in gold.

It has been traced for 200 feet, when it runs right out under the sea.

This, I think, will prove to be an excellent vein.

I panned a sample, but, on account of the large quantity of pyrites present, no gold could be seen.

I shipped from here 10 bags of ore.

128. NORD KAP II.

S.E. AND N.W.

This vein is close to the last, and appears to be of much the same

class. No work has been done upon it, but it is visible for a length of 300 feet. It is about one foot wide. The quartz contains a quantity of arsenical pyrites, and for this reason, similar to the last, the sample panned failed to show gold.

129. NORD KAP III.

This vein is situated in the Rooi Fluit. It is small and unimportant; the quartz contains a quantity of iron.

There is a small open cut on it, now completely full of *debris*.

I panned a sample, which showed a colour of gold.

The country rock is syenite.

XII.—SOMBRERO DISTRICT.

MINES.

130. SOMBRERO.

RUN 5 DEG. W. OF N.

Upon this vein more work has been done than upon any other on the island.

The croppings of the vein have been traced for nearly half a mile.

There are 4 large open cuts and 2 perpendicular shafts upon it. There are also several levels and incline shafts, which have been driven and sunk in a very irregular manner.

The deepest point is 150 feet on the underlay of the vein, but only about 60 feet perpendicular, owing to the want of timber.

At the surface and for 100 feet in depth the vein averages 4 feet wide, varying from 7 feet to 6 inches, but for the last 40 feet it has decreased down to about 4 inches. Thinking that the miners might have left the vein in the foot wall, I directed that a perpendicular shaft should be continued. It was sunk 15 feet without anything being discovered; but I nevertheless hope that, by continuing to sink on the vein, it will be found to increase in size; this I think will be the case, as the vein from the surface was very irregular, opening out and pinching in every yard. I see no reason why it should not open out again below. It dips E. at an angle of 23 degs. from the horizontal.

The quartz, which on the whole has been found to be very rich, is white, coloured very much with iron; in the vein there is a

streak of soft honeycombed rock, which, judging from the pans I made, must be extremely rich.

The country rock is soft, decomposed gneiss, which requires a quantity of timber; but the vein is dipping towards solid syenite, in which it may get more regular, and become more solid and generally better.

The hanging wall is very regular, whilst the foot wall is quite the reverse, jumping down in steps all the way from the surface.

There is a large quantity of ore standing in this vein, which can be easily broken when some timber is provided to support the country rock; but now it is quite unsafe to break away any ore.

My desire was to ship home 10 tons from here; but, owing to this difficulty, I was able to send only 32 bags.

I panned 7 samples from the vein, all of which gave excellent colours of gold.

Although this vein has gone so small in the bottom, I regard it as a very important one, because the ore is rich, and there must be still a large quantity of ore standing near the surface.

131. NORTH SOMBRERO.

RUN 25 DEG. W. OF N.

This vein is situated about a quarter of a mile to the N. of the last, but the croppings on each, when traced, come very close together. They are not the same vein, however, although very similar in character.

This vein is developed by open-cuts for 1,100 feet, one of which is as much as 86 feet deep on the underlay.

It can be seen in many places in the open-cuts. It averages 4 feet in width, varying from 2 to 6 feet.

The quartz looks very well indeed, having much the same appearance as the last, only not quite so solid. The streak of honeycomb quartz is absent.

The walls are soft, and requires timber before any depth can be reached. At present the work must be performed by uncovering the vein of the surface rock.

This is another very fine vein, and one which, when more worked upon, will prove to be among the best on the island.

I panned a sample, which gave a good colour of gold.

I shipped 10 tons from this vein.

132. SIMON.

RUN N.W. AND S.E.

This vein was discovered during my visit to Aruba, and during my stay a little work was done upon it.

It is about a quarter of a mile N.W. of Sombrero.

It is a small vein about 20 inches wide, with most perfect walls, and dipping slightly to the N. It was uncovered for about 15 feet in depth at one point, and presented a regular and solid appearance.

It has been traced for 200 feet. The quartz looks very well.

I panned 2 samples, both of which gave good colours of gold.

I shipped 10 bags of the ore.

133. MANASA.

RUN N.E. AND S.W.

This is about a quarter of a mile E. of N. Sombrero.

It is an enormous vein, at one point cropping out fully 15 feet above the surface, and of a great width, at least 20 feet; but it has not been traced far.

There are several varieties of quartz in the vein, but most of it contains a quantity of iron; there is also some honeycomb quartz.

From this there can be a very large quantity of quartz very easily broken, but from its appearance I do not suppose it is of such a high grade as most of the others.

I panned a sample which gave a good colour.

I shipped 30 bags of the ore.

134. PICARON.

This is about a mile S.E. of the Urataka vein, situated on the road to La Fontaine.

RUN 10 DEG. N. OF E.

It is a small vein upon which a considerable amount of work has been done on account of its richness.

There are 3 shafts, one of which is down 43 feet, and is well timbered, and well situated for future operations.

In the bottom of the shaft the vein is one foot wide, and this is about the average in the other places where it is visible.

The quartz is of a peculiar character, but of a very favourable appearance; some is almost blood-red.

The country rock is a soft gneiss, which requires a quantity of timber.

The vein, although small, will well repay further operations.

I panned 2 samples, both of which gave very good colours, showing a quantity of rough gold.

I have shipped 10 bags of the ore, which yields about 6 guineas per ton.

135. BURRO MUERTO.

RUN 10 DEG. W. OF S.

This is a new vein, upon which there is one small open-cut. It is situated near the last.

The vein looks well, and is about 1½ feet wide of solid quartz of a very promising character, containing a quantity of pyrites.

It is a very nice little vein, and well worth further working.

I panned a sample which gave a good colour of gold.

I shipped 10 bags of the ore.

XIII.—CIEN FUEGOS DISTRICT.

MINES.

136. CIEN FUEGOS.

RUN E. AND W.

This vein is situated upon the La Fontaine Road, a mile south-east of Picaron, and is one of the best upon the island. It crops out boldly for a good length, and averages 5 feet in width; in some places as much as 7 feet, and in others as little as 3 feet. It is remarkably regular, and looks as if it would hold down the same to a great depth.

The quartz is solid, and the walls of syenite are perfect.

It has been developed 600 feet by open cuts; one of which is 236 feet in length, but shallow, and traced a great deal further by croppings.

From here a very large quantity of ore can easily be broken.

I have a good opinion of this vein, and I never saw one that afforded better indications of permanency.

I panned a sample, which gave a good colour of gold.

I shipped 10 tons of the ore.

137. SOUTH CIEN FUEGOS.

RUN E. AND W.

This vein is about 250 feet south of the last, running along the bottom of a gulch.

It is a vein of about 2 feet in width, upon which but little work has been done; but from its regularity of size, and the great length for which it is traced, it is well worth further working.

At one point the croppings are of considerable size.

The ore looks very well; and from the sample I panned I got a good colour of gold.

From here I shipped 10 bags of ore.

138. POZO DEL REY.

RUN E. AND W.

This vein is about ½ mile N. of Cien Fuegos.

It is of little importance; no work has been done upon it, and little is to be seen.

I panned a sample, which gave a very good colour of gold.

139. FORT GEORGE.

RUN 10 DEG. N. OF E.

This vein is situated a quarter of a mile W. of Cien Fuegos.

It is one of the largest veins upon the island, and may be seen for some distance all round.

It crops high above the surrounding country like a small hill of quartz.

The width cannot be determined exactly until some work is done upon it, but it must be at least 30 feet at ono place.

It has been traced for a mile, but of course the croppings are not so enormous as those I have described for the whole length.

Undoubtedly, there is here an enormous quantity of quartz, and though from its appearance it is of low grade, the vein must be very important, more particularly because it may be quarried down and treated at little expense.

I panned a sample, which gave a slight colour of gold.

I shipped 10 tons of the ore.

140. SERRO BLANCO.

RUN 30 DEG. S. OF W.

This vein is situated upon the top of a mountain, about half a

mile E. of Balashi, and can be seen from a great distance, nearly all over the island.

It is of enormous size, and already upwards of 7,000 tons of ore have been broken from it without much visible diminution.

This vein is 20 feet wide, of solid quartz in the open-cut, from which all this rock has been broken, and it has the most perfect walls imaginable, with every indication of holding good in spite of its great size.

The quartz, which is both red and white, contains a little green copper, and also a little iron and copper pyrites.

The country rock is a talcose slate, which is loose and shaky, and as soon as any depth is reached timber will be necessary.

The vein being situated upon the top of a hill, a very desirable way of working it would be to drive a cross-cut to intersect it, and thus have a level out of which to tram the ore, &c. The cross-cut would not be any great length—about 250 feet.

There are 2 large open-cuts in the vein, and it has been traced by croppings for a considerable distance.

If this ore is up to the average, this will be a most valuable vein, for it can be worked economically, and the position is favourable for a mill site.

I panned 2 samples of the ore, which gave good colours of gold.

I shipped 10 tons of the ore.

There is a very strong branch from this vein, running 20 deg. S. of E.

141. WEST SERRO BLANCO.

RUN N.E. AND S.W.

This vein is very near the last and almost in the same line. It is, however, not the same as the last, though situated on the same hill.

It is 6 feet wide of quartz, very similar in character to the last.

A large quantity of ore can also be broken from here with facility.

I panned a sample which gave a good colour of gold.

I shipped 5 tons of the ore.

142. RICKETTS.

RUN 30 DEG. N. OF E.

This is another enormous vein in the same vicinity. At one place it is at least 30 feet wide.

No work has been done upon it, but if the ore is up to the average a large quantity can soon be broken.

The quartz looks tolerably well, but is rather white.

I panned a sample, which gave a good colour of gold.

143. TUCKER.

This is a new vein which crops up boldly near the last, but upon which no work has been done.

It is not of much importance.

It is parallel to and is of the same character as the last, but smaller.

144. MIRA LA MAR.

RUNS N.W. AND S.E.

This vein is situated upon a mountain about 400 feet above the sea, and is traced for a considerable distance down to the gulch. A tunnel could be run in on it from either side, which would be from 150 to 200 feet below the croppings on the top.

It is developed by open-cuts for 1097 feet, and traced further by croppings.

Most of the work done is upon the top of the mountain.

There are 4 small open-cuts, and one shaft 20 feet deep upon the vein, in which the vein averages 4 feet in width, but as they were full of dirt, it was visible in but few places.

I saw the bottom of the shaft after it was cleaned up; the vein looked very well, being 3 feet wide and of solid quartz.

The quartz looks rich, and frequently shows free gold.

The country rock is a syenitic slate, the strata of which run directly across the vein.

This is one of the best veins I saw. It compared very well with Cien Fuegos, but is not quite so large.

I panned 3 samples from here, all of which gave excellent colours of gold.

I shipped 10 tons of the ore.

BRANCHES.—From this vein there are 3 very strong branches running in different directions. One contains a great deal of pyrites.

All are worthy of being prospected more thoroughly.

145. SCHONBERG. 146. SERRO PUERCO. 147. ESPANOL.

These veins are all near together and not far from the last.

They look very promising, but upon none has any noticeable amount of work been done.

They are all about 2½ feet wide, of very nice looking quartz, especially the first.

Each may be traced by croppings for some 500 feet.

I panned samples from all, but only succeeded in getting colours from the last two.

I shipped 20 bags from Serro Puerco, and 10 bags from the others.

XIV.—YAMANOTA DISTRICT.

MINES.

148-149. ARIKOK, II. & III.

These veins are near the top of Arikok Mountain, some 400 feet above the sea, and about 9 miles from town.

They are both large veins, traced a considerable distance by croppings, but upon neither has any work been done.

The quartz is very white in some places, and some of it is very crystalline.

I have a good opinion of these veins, and think they are well worth developing.

There is a branch from No. 1, which looks very well indeed.

I panned samples from these veins and got a slight colour of gold from both.

150. YAMANOTA.

This vein I did not visit. It is situated upon the Yamanota Mountain, and I saw the white quartz cropping out boldly in the distance. No work has, however, been done upon it.

XV.—LA FONTAINE DISTRICT.

MINES.

151-152. DOS PLAYAS, I. & II.

These veins are about 1½ miles N. of La Fontaine, and close to the sea.

Upon No. 1 there is a large open cut, which has now caved in.

But it is stated that the vein is 3 feet wide and has yielded some very rich rock.

They are, in my opinion, of little importance.

I panned a sample from No. 1, which failed to give a colour of gold.

153. DWARS. 154. PAGA ARINA. 155. LA FONTAINE. 156. PRINCE.

These veins are of little importance; very little work has been done upon any of them.

XVI.—SERRO COLORADO DISTRICT

MINES.

157-158. SERRO COLORADO, I. & II.

These veins are situated at the extreme S. E. point of the island, close to the sea. The veins cross each other at right angles and at the point of intersection a shaft has been sunk, now full of water.

The veins are only small, and are not entitled to much consideration.

ORE MINED.

I estimate the quartz already broken on the island at twenty thousand tons, although the irregularities of the piles made an exact estimate difficult.

MINING IN THE GULCHES.

During the time the mines were worked, a very large quantity of gold was taken from the valleys, gulches, or roois, as the residents and officials on the island readily certify.

Every rooi or gulch but one upon the island has been worked, and, it is stated, with success.

The gold was separated in a very rude manner from the fine dirt; it was either carried to the sea or to some water and washed in large bowls, or to some place exposed to the wind, and there treated by a winnowing process.

I have no doubt some of them can be worked advantageously upon the Californian plan by the introduction of water.

MODE OF TREATING THE ORE.

Up to the present time the ore from the island has been shipped to New York or England, and there treated. The ore shipped to the United States has always been selected.

This is a bad system, as the process of milling can be as well carried on at Aruba as at New York; and the expense of sacking and shipping to New York is at least 7 dols. a ton, which would be avoided by the erection of proper machinery at Aruba. The freight upon the bullion would be trifling compared with that upon the ore.

It appears to me that the best way to commence operations would be to have 2 mills of 50 stamps each, one to be worked by wind and the other by steam; the former so arranged that in case the wind failed to do what is expected of it the mills could be adapted to steam with little extra expense; and the latter should be made so that it can be converted into a windmill with facility, if it be found advantageous to do so.

Each mill worked by wind should be small, and calculated to drive about 10 heads. They should be made upon the most improved system for the treatment of gold ore,—that is, I believe, a mill with batteries of 5 moderately light heads, weighing about 550lbs. each, with amalgamated copper plates inside the battery, and also outside, over which the water with pounded ore has to flow. It should then pass over blankets, and by this means all the free gold is caught.

The tailings, which will contain all the auriferous pyrites,

should be carefully collected, and dressed by good concentrating machinery. I believe the ordinary round buddles have been found the most economical and desirable. This pyrites, when washed for this purpose to a sufficiently high percentage, should be shipped home to Swansea, where it can be sold for its full value.

These mills, whether they are made at New York or elsewhere, should be sent down to Aruba ready for erection, including all the machinery and timber work.

MILL SITES.

I selected 5 very desirable points upon which to erect mills.

They are all well exposed to the wind, and well situated for mins of importance; also for water, and for the erection of concentrating machinery.

TRAMWAYS.

After the crection of mills, it will be necessary to build tramways of a narrow guage to convey the ore from the different mines to the mills.

The country is generally well adapted for tramways, which should be light, of about 2 feet 6 inches gauge. Should iron be found too expensive, the timber of the mainland, 14 miles distant, is very abundant and superior in quality, and would make good and durable rails.

PUMPING.

In all the mincs, when they get deeper, it is probable water will be found, though only in small quantities. Pumps will be required, which certainly can be worked by wind. When the mine is situated in a place protected from the wind, the pump must be worked by steam or mule power.

COST OF MINING.

According to the records, the cost of mining for the last two years has averaged 6s. a ton, including everything delivered upon the wharf. This also includes a great outlay for what is called spalling, that is, breaking ore sufficiently small to be put into sacks.

All the ore at present has been broken from near the surface,

and consequently the expense of mining has been less than it will be in the future.

The expense varies with the size of the veins.

By the introduction of the Blake stone-breakers, it may be assumed that ore can be produced ready for the stamps for five shillings per ton, and perhaps less.

COST OF MILLING.

This, if wind is found sufficiently powerful to work the stamping machinery, ought not to cost over 16s. per ton. If steam be necessary, the expenses will be much increased.

Professor Raymond, the United States Mining Commissioner, in an official reports, states the cost of mining and milling ores in California as follows:—

Eagle Mill—

Milling cost	1·25 dols. per ton.

Calaveras Mining District—

Mining cost per ton	2·00 dols. depth of mine 150 feet.
Average milling cost	50 cents per ton.

Amader Mine—

Cost of mining per ton....	4 dols. 86 cents.
,, milling ,, ...	1 dol. 97½ cents.

Cost of treatment of ores per ton at the following mills:—

	Dols.
Reed Mill	3·00
Independence Mill.....	2·00
Crystal Mill	2·00
Stillway Mill	3·00
Star Mill.....	4·00
Tafts Mill	62
Confidence Mill	2·00

The average of the above-named mills being 2 dols. 37½ cents, or 9s. 6d. per ton, with the cost of wages as follows:—

First class miners	4·00 dols.	per day.
Second class miners.....	3·50 ,,	,,
Surface labourers	3·00 ,,	,,

In Nevada Professor Raymond gives the cost as follows :—

Sierra Nevada Mine—

	Dols.	Dols.
Average yield of ore per ton		8·66
Mine expenses per ton	1·92	
Mill ,, ,, ...	3·03	
Other ,, ,, ...	·77	5·57
Profit per ton.....		2·94

Or 34 per cent.

Cost of Labour—

Wages of first class miners, 4 dols. per day for eight hours' work.

Wages of second class miners, 3.50 dols. per day for eight hours' work.

Wages of surface labourers, 3 to 3·50 dols. per day for ten hours' work.

Cost of fuel—nut pine wood 16 to 17·00 dols. per cord.

In Montana, the cost of mining and reducing the ore of the Montana Mining Company stands thus :—

"Ore yields 10 dols. in gold on an average. The cost of mining and milling a ton of this ore is said to be 4·00."

From these statements it will be seen that the cost of mining ores in California, Nevada, and Montana, with skilled mining labour costing upon an average 3·50 dols. a day, and ordinary labour 3·00 dols., does not exceed in any case 4·86 dols., and in most instances the cost is but 2·00 dols. per ton. The expense of milling and reducing does not in any case exceed 4·00 dols., and in most cases the cost is only from 50 cents to 2·00 dols. per ton. The cost of labour at Aruba is 30 cents, or 14d., per day for nine hours' labour, and it is safe to estimate that three of the Aruba miners are fully equal to two miners in any of the mining districts in the United States; consequently, the cost of mining and reducing ores in Aruba should not exceed that of California, Nevada, or Montana; and from its accessibility by water, the convenience of the coast for timber, and the fact that coal is selling at Curacoa at ten dollars per ton, it would seem that these rates would be a high estimate.

DOCUMENTS.

I have collected all the documents necessary to establish the validity of the concession, which are submitted herewith ; also various certificates from citizens and officials of Aruba.

I am much indebted to the Government officials and citizens of the Island, and to the superintendent and assistants at the mines, for facilitating my explorations.

SUMMARY.

As I have already stated, I believe that on the island of Aruba there are more gold quartz veins than are known to exist in any other place of the same size.

There have been 200 veins already discovered, and it is but reasonable to suppose that further explorations will develope many more. I have described fully 158 veins, which, as a whole, are well situated for working. From 47 of these I have obtained samples of gold-bearing quartz, varying in quantity from 500 to 20,000 pounds. This quartz was taken from place under my own supervision, put into bags and sealed with my seal. It has arrived in England, and will soon be treated by competent persons, and certificates of its yield, duly attested, will accompany this report.

My investigations have shown that there are immense bodies of gold-bearing quartz in sight. Having no other means of testing the ores on the island, I adopted that of crushing and panning. In this manner I treated samples from one hundred and nineteen different veins, all of which, except eleven, gave good colours of gold; but of course this method would give no definite approximation of their value. For correct estimates of this I refer you to the accompanying duly authenticated certificates.

I have given extracts from the official report of the United States Commissioner as to the cost of mining and treating ores, and also the cost of labour, but I have not alluded to the immense difficulties to be overcome in conveying to those various districts, in that country, the machinery, supplies, &c., necessary for erecting the mills and carrying on the work. In some instances the cost of transportation exceeds the original price of the mills and machinery.

The accessibility of the Island of Aruba by water,—the fact that there will be little or no land carriage for the machinery, fuel, and

other supplies, as well as ore and bullion,—the honest and peaceable character of the inhabitants, and their complete control by the Government officials,—the extraordinarily low price and quality of the native labour,—the great benefit to be derived from the use of wind as motive-power,—the general salubrity of the climate,—are all circumstances which must be taken into consideration in forming an estimate of the value of the concessions to be acquired by the "Aruba Island Gold Mining Company."

FRANK TAYLOR,

Of John Taylor and Sons, Mining Engineers.

6, *Queen Street Place, London, E.C.*

June 5th, 1872.

RESULTS OF TREATMENT OF ARUBA ORES.

815 tons of Aruba Island Gold ores from 19 different mines were treated at Greenville with the following results:

GREENVILLE REDUCTION WORKS,
GREENVILLE, NEW JERSEY, U.S.
April 3rd, 1872.

We hereby certify that we have treated the following quantities of Aruba Island gold ores with the results as stated below, viz.:

1.	Kadushi Mine - - - -		11,000 lbs.,	yielded	$113.00	per Ton.
2.	Mosquito Mine, No. 3 - -		1,000 lbs.,	„	102 25	„
3.	Mosquito No. 1- - - -		10,000 lbs.,	„	113.75	„
4.	Sombrero - - - - -		54,000 lbs.,	„	146.75	„
5.	Calabassa Mine - - -		5,000 lbs.,	„	165.00	„
6.	Sombrero - - - - -		324,000 lbs.,	„	92.25	„
7.	Sombrero (selected ore) - -		47,000 lbs.,	„	235 00	„
8.	North Sombrero Lode,	410 Bags	54,976 lbs.,	„	58.00	„
9.	Mosquito Lode	105 „	13,837 lbs.,	„	111.25	„
10.	Calabassa Lode	112 „	14,583 lbs.,	„	66.25	„
11.	Bushiravana Lode	607 „	80,341 lbs.,	„	61.25	„
12.	Kadushi Lode	2,115 „	281,195 lbs.,	„	91.25	„
13.	Cien Fuegos Lode	1,712 „	223,544 lbs.,	„	35.00	„
14.	Serro Blanco Lode	3,416 „	481,027 lbs.,	„	20.25	„
15.	Picaron Lode	265 „	35,395 lbs.,	„	35.00	„
16.	Urataka Lode	186 „	23,605 lbs.,	„	51.25	„
17.	Nord Cap Lode	50 „	6,331 lbs.,	„	46.25	„
18.	Mira La Mar Lode	2 „	253 lbs.,	„	37.50	„
19.	Serra Cyrstal Lode	20 „	2,504 lbs.,	„	52.75	„
20.	Santa Lucia Lode	23 „	2,817 lbs.,	„	46.50	„
21.	Corribodi Lode	5 „	667 lbs.,	„	61.25	„
22.	Manassa Lode	4 „	457 lbs.,	„	51.50	„

This is the gross yield of the whole mass crushed, without deduction for cost of treatment.

(Signed)

R. M. RICKETTS,
Superintendent.

ERRATA. Page 67.

HENRY BATH AND SONS' ASSAYS.

Read

Seventy tons were shipped to Swansea in April last, and yielded as per statement of Henry Bath and Sons as follows :—

ASSAY OFFICE AND LABORATORY, MINING OFFICE, SWANSEA,

April 20th, 1872.

ASSAYS OF ARUBA ORES.

		Fine Silver, ozs. per ton.		Fine Gold, ozs. per ton.		Value in fine Gold when extracted.
S	Sombrero Mine (unselected ore)	2.25	1.69	1.40	1.63	£6 6 0
	,, ,, ,, Re-assay	2.31	2.28	1.79	1.79	7 11 0
K^2	Kadushi ,, (second class ore)	4 50	1.30	1.63	1.37	6 6 0
K	Kadushi ,, (first ,,)	2.28	2.44	2 51	2.45	10 10 0
C	Calabassa ,, ,, ,,	5·57	5 98	5 29	5·42	22 9 6
C^2	Calabassa ,, (second ,,)	1.09	1.69	1.63	1.63	6 17 0

(Signed) JAMES MERRY, *Assayer.*

Four bags of selected Aruba ores were treated by Henry Bath and Sons, as follows:—

62, Gresham House, Old Broad Street,

Oct. 24th, 1871.

Dear Sir,—We beg to hand you below, the assay of Aruba ores. They give an average of $25\frac{4}{10}$ ounces per ton, which we value at £91 8s. 10d. per ton; the silver is of no value.

Yours truly,

HENRY BATH & SONS.

Bag	No.	2.	Silver	3	ounces,	Gold	$2\frac{3}{4}$	ounces	per	ton.
„	„	3.	„	20	„	„	$269\frac{41}{100}$	„	„	
„	„	4.	„	2	„	„	$15\frac{77}{100}$	„	„	
„	„	5.	„	1	„	„	$18\frac{80}{100}$	„	„	

Seventy tons were shipped to Swansea in April last, and yielded as per statement of Henry Bath and Sons as follows:—

Assay Office and Laboratory, Mining Office, Swansea,

April 20, 1872.

ASSAYS OF ARUBA ORES.

						Gold value when extracted.			
C	Calabassa	Mine,	first	class	Ore—Silver $5\frac{3}{4}$ oz. ..	£22	9s.	6d.	per ton.
C^2	„	„	second	„	„ „ $2\frac{1}{2}$ oz. ..	£6	6s.	0d.	„
K	Kadushi	„	first	„	„ „ $2\frac{1}{2}$ oz. ..	£10	10s.	0d.	„
K^2	„	„	second	„	„ „ $2\frac{1}{2}$ oz. ..	£6	6s.	0d.	„
S	Combrero	„	unselected	„	„ 1 oz. ..	£6	17s.	0d.	„

(Signed) JAMES MERRY, *Assayer.*

Samples of the same ores treated by Frederick Claudet, Assayer to the Bank of England, yielded as follows:—

Assay Offices and Laboratory,

6 and 7, Coleman Street, London,

May 21*st*, 1872.

Dear Sir,—I have examined the five samples of Aruba Gold ore forwarded on the 17th instant, and find the following to be the results. Full assay value of the ore taken, fine gold at 84s. 9d.,

and fine silver at 5s. 5d. per ounce. This is without any deductions for cost of treatment.

		Oz.	Dwts.	Grs.	Value.			
C_2	Gold	1	15	22	£7 12s.	1d.	£8	6s. 2d.
	Silver	2	12	6	14s.	1d.		
K_2	Gold	1	9	9	£6 4s.	5d.	£6	8s. 9d.
	Silver		16	8	4s.	4d.		
K	Gold	2	15	12	£11 15s.	1d.	£12	6s. 5d.
	Silver	2	2	11	11s.	4d.		
C	Gold	5	17	14	£24 18s.	3d.	£26	6s. 5d.
	Silver	5	4	12	£1 8s.	2d.		
S	Gold	1	15	22	£7 12s.	1d.	£8	0s. 9d.
	Silver	1	12	6	8s.	8d.		

(Signed) FRED. CLAUDET.

Of the ores shipped by Mr. Taylor, Mr. Fred. Claudet has treated the following 15 lots:—

ASSAY OFFICES AND LABORATORY,
6 AND 7, COLEMAN STREET,
May 31st, 1872.

DEAR SIR,—I have examined the duplicate samples of Aruba Gold ores forwarded on 30th inst., and find the following results:—

Per Ton of 20 Cwt.				Gold.	
			Ozs.	Dwts.	Grs.
Calabassa . . .	C	161 Bags		13	1
Fort George . .	F	160 „		6	12
Serro Hacha . .	H	6 „	4	15	
Lampe . . .	L	10 „		19	14
South Cien Fuegos .	S C F	10 „		6	12
Chaboruri . . .	C H	10 „		16	8
Picaron . . .	P	10 „	1	6	3
Yanchi . . .	J	10 „		6	12
Serro Puerco . .	S P	20 „		3	6
Matividiri . . .	M T	20 „	1	9	9
Manassa . . .	M S	29 „		6	12
Cien Fuegos . .	C F	148 „		6	12
North Sombrero .	S N N S	161 „		3	6
Kadushi . . .	K	170 „	2	2	11
Dump Ore . .	D	180 „		13	1
Average Sample, 1,105 Bags		„	1	1	

(Signed) FRED. CLAUDET.

SELECTED SAMPLES ARUBA ORES.

CERTIFICATE OF ASSAY.

ASSAY OFFICE AND LABORATORY,
6 AND 7, COLEMAN STREET,
June 14*th*, 1872.

GENTLEMEN,—I have examined the sample of Aruba Gold ore forwarded on the 12th inst., and find the following to be the result:—

Gold 490 ounces ..... per ton 20 cwt.
Silver 40 „ 16 dwts..... „ „

Average of two experiments. Button of Gold weighing 0·690 oz. is from 59 ounces of selected specimens, of which the above is the average assay.

Yours obediently,
FRED. CLAUDET,
(Per F. CHAMBERLAIN).

CERTIFICATE OF ASSAY

Of 35 lots of Aruba Ore shipped by Mr. Taylor, *May*, 1872.

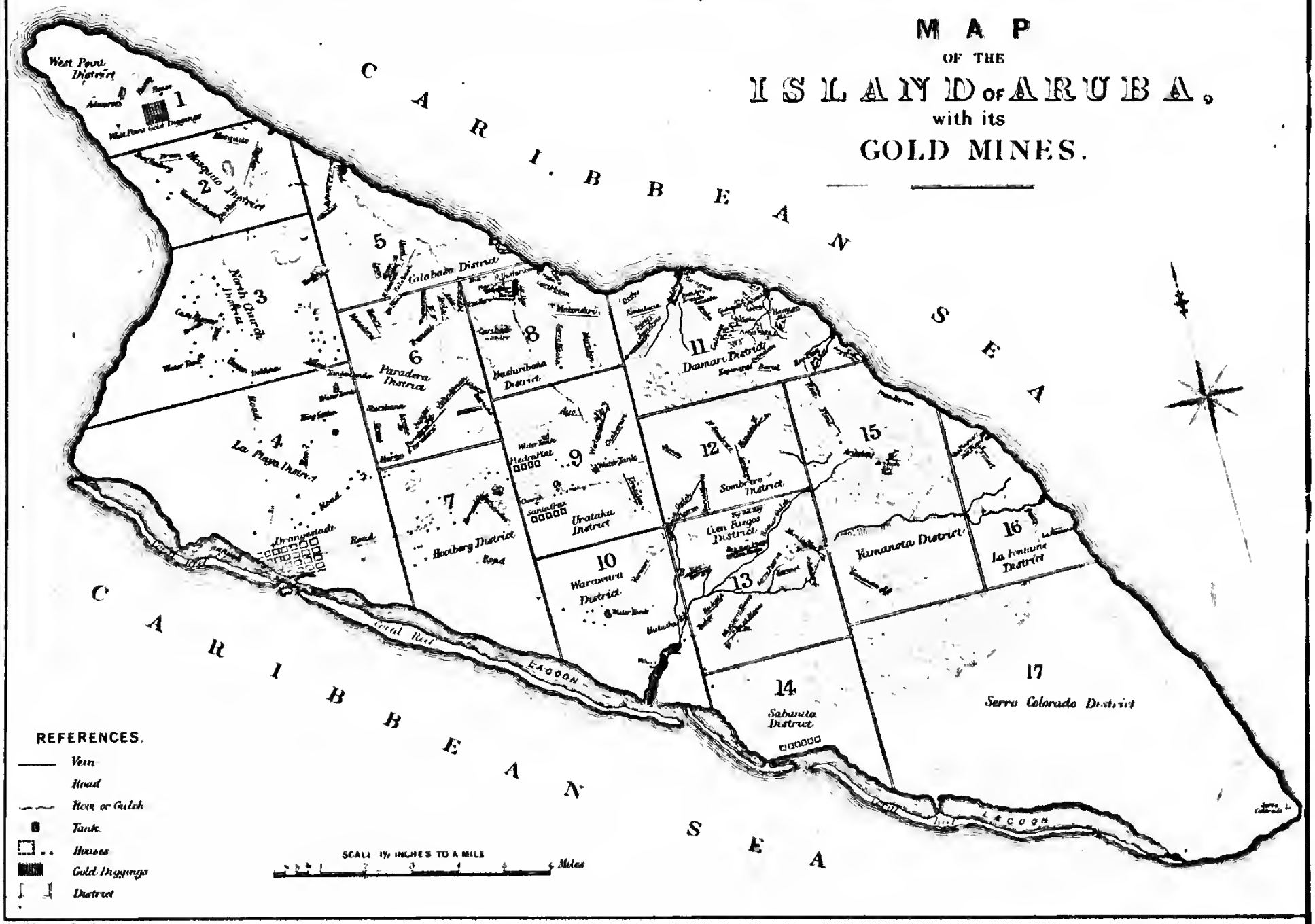
Assay Offices and Laboratory,
6 and 7, Coleman Street, London, E.C.
June, 1872.

Dear Sir,

I have examined the 35 samples of Aruba Gold Ore, forwarded on the 14th, and find the following to be the result:

				GOLD.			VALUE. per Ton		
				ozs.	dwts.	grs.	£	s.	d.
A	Aijo	10	Bags		11		2	6	7
D	Aijo	170	,,		11		2	6	7
E	Espanol	10	,,		5		1	1	2
G	Goldstein	10	,,	1	1	0	4	9	
M	Maria	6	,,		19	12	4	2	8
N	Nunas	6	,,		16	12	3	9	11
O	Ormiga	20	,,		3	6		13	9
R	Ricketts	10	,,		3	6		13	9
S	Sombrero	30	,,	2	6	0	9	14	10
S X X	Sombrero (selected ore)	2	,,	6	10		27	10	10
T	Taylor	160	,,		8		1	13	11
U	Urataka	84	,,		9	12	2	0	3
W	Werleman	10	,,		11		2	6	7
B M	Burrico Muerto	10	,,		8		1	13	11
B N	North Bushirabana	6	,,		19	12	4	2	8
B Z	Bushirabana	10	,,	2	12	12	11	2	5
C B	Casa Blanco	10	,,	2	2	12	9	0	1
C N	North Calabassa	20	,,		3	6		13	9
J E	John Eman	10	,,		15		3	3	7
K L	Serro Crystal	10	,,		5		1	1	2
M D	Matadero	10	,,		3	6		13	9
M L	Mira La Mar	160	,,	1	19	12	8	7	5
M M	Meme	10	,,		3	6		13	9
N K	Nord Kap	10	,,		3	6		13	9
P A	Paradera	20	,,		3	6		13	9
R U	Rule	10	,,		16	12	3	9	11
S B	Serro Blanco	160	,,		2			8	4
S F F	Shaffenburg	10	,,		15		3	3	7
S H	Schonberg	10	,,		6	12	1	7	6
S L	Santa Lucia	10	,,		15		3	3	7
S L_4	Santa Lucia No. 4	10	,,		13		2	15	1
S V	Simon	10	,,		16	12	3	9	11
T L	Tankelander	10	,,		5		1	1	2
T R	Tras Muralla	10	,,	1	19	12	6	5	0
W S B	West Serro Blanco	80	,,		5		1	1	2

(Signed) FRED. CLAUDET.


MAP
OF THE
ISLAND OF ARUBA.
with its
GOLD MINES.
CARIBBEAN SEA
CARIBBEAN SEA
West Point District
Mosquito District
North Chuchu District
Calabash District
Paradera District
La Playa District
Hooiberg District
Bushiribana District
Hedera Plat
Urataka District
Daimari District
Sombrero District
Cien Fuegos District
Yamanota District
La Fontaine District
Wararuva District
Sabanata District
Serro Colorado District
Oranjestadt
Coral Reef
LAGOON
Coral Reef
LAGOON
REFERENCES.
Vein
Road
River or Gulch
Tank
Houses
Gold Diggings
District
SCALE 1½ INCHES TO A MILE
Miles